JUNE 14, 1954

Atomic Locomotive . . . p. 58

RAILWAY AGE

The Standard Railroad WEEKLY Since 1856

NEW LINE OF GENERAL MOTORS LOCOMOTIVES

190 GP9's Delivered to Union Pacific This Year

The Union Pacific is spending more than $35,000,000 this year for 205 General Motors Diesel units—including 190 GP9 General Purpose Locomotives (and 15 E9 Passenger Units). With 1750 horsepower and increased tractive effort, the new GP9 can haul more tons or pull trains faster. New wheel slip control and automatic sanding apparatus effectively utilize the increased horsepower and tractive effort.

The Best Locomotives Are Even Better Today!

ELECTRO-MOTIVE DIVISION · GENERAL MOTORS

La Grange, Illinois • Home of the Diesel Locomotive • In Canada: GENERAL MOTORS DIESEL, LTD., London, Ontario

GENERAL MOTORS LOCOMOTIVES

P&S Division Convention

First Quarter Purchases

Land Architecture for Railroads

Room for Everybody

Railroad-Community Cooperation

One of a series of messages to shippers sponsored by Buffalo Brake Beam Company — Unit Truck Corporation in behalf of railroad-motor truck coordinated service.

Pardon us
for mixing business with pleasure!

Statistics show that we Americans spend more time in our automobiles than we do in our living rooms!

If you haven't already heard about it, the railroads are working on a new idea that is going to make personal transportation a lot safer and more pleasurable.

Piggy-back—the railroads' name for the terminal-to-terminal hauling of truck trailers by rail, has already proven itself under actual operating conditions. Today — the American railroads are teamed up with some of industry's greatest names in a ing program to make Piggy- shippers everywhere.

By reducing the volume of ments, Piggy-back will prov who use our highways for But for you, Mr. Traffic merger of the best in tr offers a double benefit pendable handling of less of highway traffi weather conditions— for your family on th

BUFFALO BRAKE BEAM COMPANY • UNIT TRU
NEW YORK • BUFFALO •
FREIGHT CAR BRAKE RIGGING FOR HALF

WA
PAG

UNIT TRUCK — standard on freight cars built last year—will implement the new era in transportation opened up by PIGGYBACK. No system of freight car brake rigging can approach Unit in safety—dependability—operating economy.

UNIT TRUCK CORPORATION
NEW YORK

like this mean high-speed runs for the New York Central's Pacemaker trains.

AVY
iES

oth, and Stylish

rand old patriarch, the iron horse, and the coming of the
railway motive power. At the same time it has created
blems that spring from the long runs and sustained high
speeds that the new locomotives make possible.

Here at Bethlehem we feel particularly well qualified to meet these problems. Through constant research we have learned how to give a diesel wheel the toughness, strength, and life that modern service demands. A Bethlehem wrought-steel wheel is one that grows old slowly; one you can select with confidence for the biggest, fastest diesels on your longest, toughest runs.

BETHLEHEM STEEL

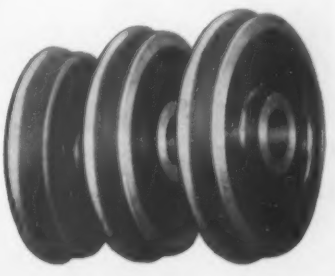
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM WROUGHT-STEEL WHEELS

COMPANIONS TO BETHLEHEM FORGED-STEEL AXLES

FREIGHT • PASSENGER • DIESEL



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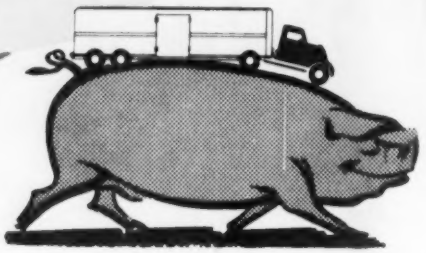
Piggy-back—the railroads' name for the terminal-to-terminal hauling of truck trailers by rail, has already proven itself under actual operating conditions. Today — the American railroads are teamed up with some of industry's greatest names in a rapidly expanding program to make Piggy-back available to shippers everywhere.

By reducing the volume of intercity truck movements, Piggy-back will prove a boon to all of us who use our highways for business or pleasure. But for you, Mr. Traffic Manager, this happy merger of the best in rail and truck transport offers a double benefit—faster and more dependable handling of your shipments regardless of highway traffic density or road and weather conditions—plus more fun and safety for your family on the open road.

BUFFALO BRAKE BEAM COMPANY • **UNIT TRUCK CORPORATION**
NEW YORK • BUFFALO • HAMILTON, ONT.
FREIGHT CAR BRAKE RIGGING FOR HALF A CENTURY



UNIT TRUCK — standard on 4 out of every 5 new freight cars built last year—will implement the new era in transportation opened up by PIGGYBACK. No system of freight car brake rigging can approach Unit in safety—dependability—operating economy.

UNIT TRUCK CORPORATION
NEW YORK

NEW YORK CENTRAL SYSTEM

Powerful articulated diesels like this mean high-speed runs for the New York Central's Pacemaker trains.

Fast, Smooth, and Stylish

The swift, quiet diesel is replacing that grand old patriarch, the iron horse, and the coming of the diesel has meant a new and stylish age in railway motive power. At the same time it has created fresh problems for the wheel-maker, problems that spring from the long runs and sustained high speeds that the new locomotives make possible.

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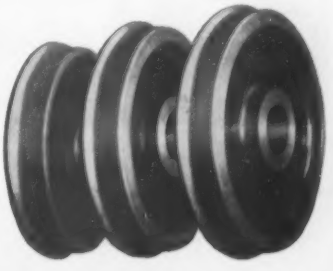
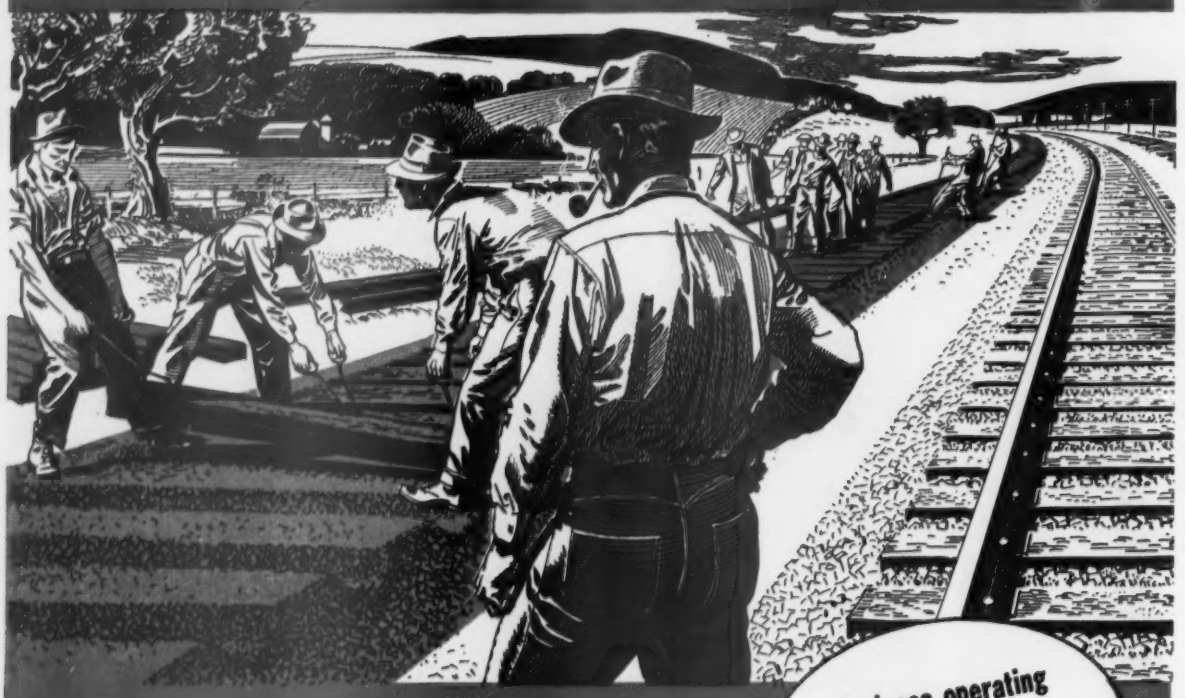
COMPANIONS TO BETHLEHEM FORGED-STEEL AXLES

FREIGHT • PASSENGER • DIESEL



They're digging out COSTS... along with the track



A SINGLE TRACK WITH **UNION C.T.C.**

Reduces operating expenses

Conserves costly, vital materials

HERE'S ONE RECORD*

1. Provided a more economical track and signal layout for existing traffic.
2. Reduced annual operating expenses $39,229.00 per year.
3. Provided other savings and salvage totaling —$295,744.00.
4. Released track and signal material for use at other points.
5. Reduced the trackage required for meets and passes.
6. Eliminated necessity for future track renewal on track abandoned.

*Factual data will be supplied on request.

"UNION" Centralized Traffic Control can reduce terminal-to-terminal time with safety and pay its way through reductions in operating expenses. May we help you?

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

RAILWAY AGE

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June 14, 1954 **Vol. 136, No. 24**

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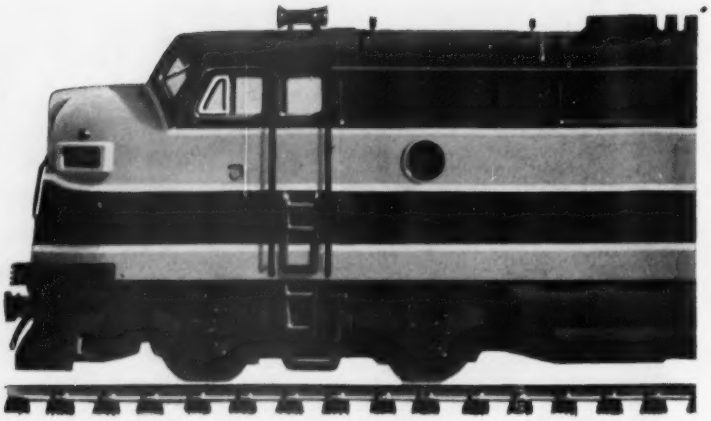
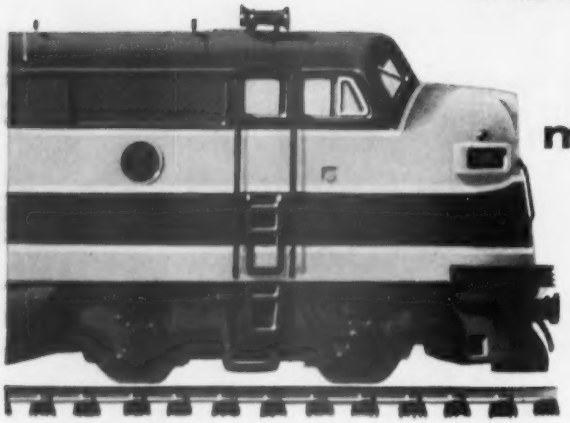
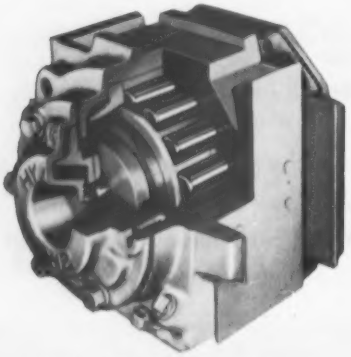
Built for EMD





more than 100,000

HYATT roller bearing journal boxes



**Shipped December 14th, 1953*

When GM's Electro-Motive Division passed an important production milepost recently, Hyatt passed one, too. For when EMD delivered its 15,000th diesel locomotive to Union Pacific, it reminded us that we have supplied EMD with more than 100,000* roller bearing journal boxes.

Naturally, we're proud of that record, just as we're proud to be a major supplier of journal boxes to all other locomotive builders. In fact, we take greatest pride in knowing that of all road diesels now in service, *seven out of every ten roll on Hyatts!*

Because of our leadership in solving the bearing problems with diesels and passenger cars, more and more railroads are turning to "*Hyatts for Freight*." When *your* railroad comes to grips with the freight car problem, be sure to get *all* the facts about roller bearings. If you do, you'll buy Hyatts.

HYATT

STRAIGHT ROLLER BARREL ROLLER TAPER ROLLER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

ROLLER BEARING JOURNAL BOXES

Current Statistics

Operating revenues, four months	
1954	$ 3,030,657,088
1953	3,501,247,731
Operating expenses, four months	
1954	$ 2,455,506,101
1953	2,653,454,001
Taxes, four months	
1954	$ 297,338,860
1953	422,069,552
Net railway operating income, four months	
1954	$ 206,661,676
1953	353,248,469
Net income, est mated, four months	
1954	$ 128,000,000
1953	262,000,000
Average price railroad stocks	
June 8, 1954	64.07
June 9, 1953	61.15
Carloadings, revenue freight	
Twenty-two weeks, 1954	13,630,777
Twenty-two weeks, 1953	15,722,963
Average daily freight car surplus	
June 5, 1954	103,434
June 6, 1953	35,895
Average daily freight car shortage	
June 5, 1954	292
June 6, 1953	3,174
Freight cars delivered	
April 1954	4,038
April 1953	6,839
Freight cars on order	
May 1, 1954	17,817
May 1, 1953	62,637
Freight cars held for repairs	
April 1, 1954	102,266
April 1, 1953	94,896

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX AND BY THE ENGINEERING INDEX SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

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Week at a Glance CONTINUED

First-quarter railway purchases for this year, at $492,000,000, were considerably below last year's figures. 74

BRIEFS

Many protests have been received by the ICC against tariffs under which the Erie, Lackawanna, Nickel Plate and Pennsylvania propose to begin trailer-on-flat-car services June 16. Among protestants is the Regular Common Carrier Conference of American Trucking Associations.

June 10 marked the 25th birthday of the Great Northern's "Empire Builder," Chicago-Pacific Northwest streamliner, which is slated to receive dome cars in the near future.

A profit of $38,000, with all costs fully distributed, was reported for the first three months of 1954 by the Illinois Central's electrified Chicago suburban service, IC President Wayne Johnston told stockholders at the road's annual meeting. He added, however, that he did not expect the service to show a profit over the entire year, although it would come closer to doing so than it has for quite a number of years past.

Local real estate taxes totaling $39.5 million were paid last year by the 15 railroads which operate in New York state, according to Gerald E. Rowley, executive secretary, Associated Railroads of New York State. In addition, he said, railroads paid many millions of dollars in state taxes, over half of which are returned to local government in state aid payments. Heaviest local tax payments went to New York City, where the railroads' bill exceeded $18 million.

Everyone a salesman—that's the latest trend in traffic solicitation, as railroad officers, sensitive to the decline in carloadings, ask the help of train crews, yard workers, shop and freighthouse men, to seek new business. A campaign entitled C.T.C.—"Courtesy—Tact—Care" on the Rock Island is bringing every employee into the

Passenger Traffic Executives say:

"Now we know

why the Hertz Rail-Auto Plan switches millions of passenger miles to railroads!"

"AND—it can bring millions of additional miles in 1954!"

"We know . . . because we use the Hertz Rail-Auto Plan ourselves! On business or pleasure trips . . . wherever we go," say the General Passenger Agents, *"we travel by train for speed . . . comfort and relaxation . . . then at our destination we rent a clean new car from Hertz to drive as our own. This Hertz Rail-Auto Plan is convenient . . . sensible . . . and time-saving. And that's not all."*

"We know from personal experience that aggressive promotion of the Hertz Rail-Auto Plan is one sound way to switch millions of inter-city motorists from the highways to the railroads!"

And the facts prove it! Last year alone, people who rented cars from Hertz at their destination actually traveled more than 136,000,000 miles on railroads! These were people who used the Rail-Auto Plan. And—there are thousands more!

It is estimated that in 1953 motorists drove close to *500 billion miles* between cities. Analysis shows that they drove these hazardous tiring miles . . . NOT because they preferred to drive . . . BUT because many times they needed a car at their destination! And remember—this staggering potential of 500 billion miles has hardly been tapped! Now is the time to switch more of this huge mileage to the Hertz Rail-Auto Plan.

How you can help promote the Hertz Rail-Auto Plan . . . help switch additional revenue to your railroad

1. TRY the Rail-Auto Plan yourself. Enjoy its many advantages. See for yourself why thousands of travelers prefer it to highway travel.

2. TELL your ticket agents about the 10% commission Hertz pays them. Urge them to ask passengers this simple question: *"May I reserve a car from Hertz at your destination?"* It takes only a few minutes to fill out the reservation forms . . . and the Hertz station concerned will pay—promptly—10% commission on the total rental charge.

3. FREE! To remind your passengers of Hertz Service and the Rail-Auto Plan, Hertz provides plastic 3¼" signs attractively printed with these words: "Reserve your Hertz Rent-A-Car from your ticket agent". These signs clamp on the grill of your ticket agents' windows.

Hertz also provides for the counters of your ticket agents and for ticket envelopes, small 2" x 4½" folders describing Hertz Service and the Rail-Auto Plan. Both items available to you in any quantity at no charge.

4. HERTZ spends nearly $1,000,000 a year in leading national magazines to sell the Rail-Auto Plan. In your own general advertising, promote the Plan. Show its many advantages. Use displays in your ticket offices. Advertise the Plan in your timetables . . . on your billboards . . . highway over-passes.

5. AND REMEMBER—only Hertz—the world's largest rent-a-car system—offers 30 years' experience . . . with more than 8,600 cars at nearly 800 stations in over 550 cities throughout the world. Every car is new, clean . . . and Hertz furnishes all gasoline, oil . . . Public Liability, Property Damage, Fire and Theft Insurance, and $100.00 deductible collision protection—*at no extra cost!* What's more—Hertz has more than 1,500,000 people who hold Hertz Charge Cards and Courtesy Cards. Also, Hertz honors Rail Credit Cards.

6. If you have any questions—WRITE today for additional information . . . reservation forms and other material that your ticket agents can use.

Department D64, 218 South Wabash Avenue, Chicago 4, Illinois; Phone WEbster 9-5165

HERTZ *Rent-A-Car* **SYSTEM**

Week at a Glance CONTINUED

effort; 14 general chairmen of labor organizations on the Pennsylvania have called on their members to help get business for that road; and B&O employees, on their own initiative, have started a campaign to get "One Million New Customers" by inviting friends to ship and travel B&O.

Two-and-a-half-hour passenger service between suburban stations in the vicinity of New York and Boston may be a reality within the next 18 months, Patrick B. McGinnis, president of the New Haven, said in a recent speech at Boston. Lending credence to Mr. McGinnis' prediction is the fact that the New Haven is understood to be giving serious study to clearance requirements of a Talgo-type train.

A special name for its own piggyback service is being sought by the Pennsylvania in a $500 prize contest, open, with certain exceptions, to all employees of that railroad. Pending selection of a final name, the company's service will be known as "Pennsy Railtrailer Route."

The ICC has given expression to its view that passenger service deficits should play more limited roles in divisions cases than in general freight-rate cases. In giving the New Jersey & New York a better break on some divisions, the commission refused to consider that road's passenger deficit as a freight service cost. It considered it only in connection with its appraisal of NJ&NY's "general financial need."

Convinced that business is on the upgrade, A. L. Hammell, president of Railway Express Agency, has called a nationwide series of sales policy meetings to inspire more intensive service and sales activities among the company's 45,000 employees. "Now is the time to go after more business with greater energy," he says. The agency is backing its judgment of future conditions with a million-dollar advertising program, largest in its history.

Atomic energy power plants, small enough to be transported on railroad cars, are one objective of a research program to be undertaken by the Bendix Aviation Corporation. Such power plants, it is felt, would be particularly desirable for emergency use in disaster areas. The research program, to be undertaken as a result of a study agreement with the Atomic Energy Commission, will be concerned primarily with new applications of atomic power to non-military projects.

Virginia division of the Seaboard Air Line, like practically every other division on the railroad, puts out a monthly newsletter addressed to employees on the division. Prepared by the division superintendent, the newsletter, usually no longer than two pages, provides each employee with a brief account of major happenings on, and of importance to, the division.

Another railroad program for Cub Scouts is tentatively scheduled for next year, probably in January, because it proved to be such a popular theme with the youngsters when it was tried out in 1951.

Complete exemption of city transit services from all taxes (except social security) would save the public close to $200 million per year, by making private operation profitable and halting the trend toward costlier government operated transit systems, according to the magazine Bus Transportation. It would be interesting to have someone figure out the net saving to the public which might result from similar tax exemption for railroad commuter services.

ONE
CATERPILLAR UNIT
NINE
IMPORTANT JOBS

1 Lifts ties
2 Lays rails
3 Shifts cars
4 Handles car trucks
5 Plows snow in yards and on the main line
6 Grades shoulders
7 Loads and unloads cinders, salt, amacrete
8 Digs pole holes
9 Ditches

When the Waterloo, Cedar Falls and Northern Railway, Waterloo, Iowa, bought a Caterpillar D6 Tractor with a Hystaway, it knew it had one unit that had to do a lot of important jobs.

The road quickly found it had *five* units—crane, dragline, clamshell, wingdozer and bulldozer—capable of at least the nine vital jobs listed above.

And, in addition, this versatile piece of equipment works on or off track with its track-walking shoes. These shoes are designed not to injure rails and bond wires.

"We can just get on the track and go—any time it is necessary," says Nathan B. Barber of the W. C. F. & N. "It's a real versatile machine. It helps take care of 130 miles of track."

Here, then, is a real hedge against rising costs. It can do many jobs—and do them well. It operates on inexpensive No. 2 furnace oil. And, like all Cat* equipment, it will be on the job when you want it.

There's a Caterpillar Dealer near you who understands off-track maintenance problems. Ask him for a demonstration of the dependable equipment that will do your job quicker and more economically.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

Two More in Piggyback Parade

Wabash, Baltimore & Ohio, to begin service June 28, July 1, respectively—NYC "previews" equipment

Two more railroads, the Wabash and the Baltimore & Ohio, will begin to offer piggyback—trailer-on-flat-car—service within the next three weeks, while inauguration of such service on the New York Central has come a step closer to realization with announcement of a six-city preview of the equipment that road plans to use.

Wabash — A Chicago-New York piggyback service will be established by the Wabash, via connections with the Lehigh Valley and the Lackawanna at the Niagara Frontier, beginning June 28. Arthur K. Atkinson, Wabash president, revealed that the service "will be expanded" locally between St. Louis and Chicago, Chicago and Detroit, and St. Louis and Detroit "as soon as possible," and said service between Kansas City and other on-line points would come later "where sufficient demand for the service is evident."

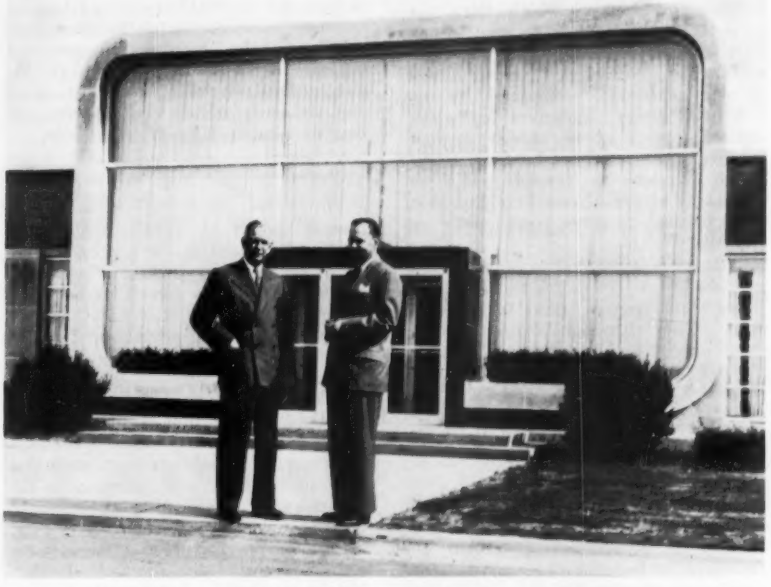
Loading facilities are being built at the terminals involved and a number of flat cars are being given tie-down equipment, he said. The service will be for truck-trailer loads moving under Wabash or other railroad bills of lading.

Baltimore & Ohio—The B&O operation, to be inaugurated July 1, will be known as "TOFCEE Service." It will be offered between Philadelphia and Baltimore, on the one hand, and Pittsburgh and Chicago on the other; also between Pittsburgh and Chicago and between Cincinnati and St. Louis. Rail charges will be substantially the same as those of common carrier truck lines operating between those points.

To start its operation, the company is equipping standard 53-ft flat cars, each capable of handling two 24-ft highway trailers.

New York Central—A traveling "preview" of the NYC's piggyback operation is now visiting Cleveland, Buffalo, Boston, New York, Detroit and Chicago, the key cities between which the Central will start its new service later this summer.

The display includes a loaded 75-ft flat car of the special design the Central will use in its trailer-on-rail operation, carrying two standard highway trailers, mounted as they will ride in actual service. Also being exhibited are a "Trailoader," hydraulic lift truck adapted for guiding trailers on and off the specially designed flat cars, and a scale model of a piggyback terminal of the type the Central is constructing at the six cities.



VAPOR HEATING CORPORATION has moved its entire manufacturing operation to a new $2-million plant at Niles, Ill., just northwest of Chicago. Here, about to welcome some 500 railway officers at an "open house" held May 27, are A. D. Bruce (left), president, and W. C. Keeran, vice-president in charge of engineering. The company manufactures Vapor-Clarkson steam generators, mercury thermostats and other equipment for passenger car heating. Interesting note: The plant is heated by steam generators being tested prior to shipment.

"Consider Short Lines in Per Diem," Kirkman Urges

"What has become of the *long view* —the long-range planning conception?," asks O. Arthur Kirkman, executive vice-president and general manager of the High Point, Thomasville & Denton, writing in his company's magazine, The Signal. Any railroad traffic man, whether with a small road or a major system, must, if he considers the industry as a whole, ask himself this question frequently, states Mr. Kirkman.

"We know a shipper who bought additional real estate on our line and contracted for a track facility although he did not intend to ship a car of freight by rail and actually has not, over a period of years. Why, then, did he buy and maintain rail facilities? Simply to prevent recurrence of a situation that existed during the early post-war period, when he was forced to close down because he could not be otherwise supplied. He has bought and paid for standby service insurance. Yet he does nothing to keep the standby insurer sound and in business.

"Immediacy and expediency have become watchwords in our nation. And railroad men—particularly short-line railroad men—are in a good position to observe it. The day may come when the standby is needed, but because it could only survive on a proportion of the business available, it would have dried up. There are many case histories where just such a drying-up process has already taken place. There will be many more.

Germ Cells—"The biggest and most powerful railroads and their managements might well afford to ponder the fact that the most serious diseases develop from microscopic germs or extremely small cells. A bit more recognition of the idea that railroading is a nationwide industry would be a more realistic and intelligent approach to mutual problems such as the difficult one concerning per diem now pending before the Interstate Commerce Commission.

"Those with the power of life or death over the smaller railroad properties should recognize that the power to tax is the

power to destroy and that a trusteeship arises at some point in the situation."

["It seems to me," Mr. Kirkman later told *Railway Age*, "that the present voting arrangement by which per diem is determined ignores any responsibility the car-owning railroads may have to railroads, such as ours, which serve to originate and deliver freight of mutual importance to both."]

Law & Regulation

"There's Room for Everybody"

Country's traffic, says Knudson, will support all carriers, but they should seek areas of agreement and of enterprise

"There is traffic enough for all forms of transportation to reap a profit. . . . Fair and vigorous competition [for that traffic] . . . ought to be . . . made even more free than it is at the present time. But its bad practices should be stopped." So James K. Knudson, former Interstate Commerce Commissioner and former Defense Transport Administrator, said in his first speech since his resignation from those positions (*Railway Age*, May 10, page 9, and May 31, page 14). The occasion was the annual dinner, on June 2, of the New York chapter of Delta Nu Alpha transportation fraternity.

There are, the former commissioner said, "some areas of agreement, some areas of compromise . . . upon which all carriers can come together"—for example, certain legislative proposals now pending in Congress—to "bury their hatchets of competitive retribution deeply and finally." "There are also," he added, "some organizations that offer the haven of a common meeting ground"—such as traffic clubs, shippers advisory boards, the Transportation Association of America, and Delta Nu Alpha itself.

Piggyback Is One Way—"There are," he concluded, "common areas of enterprise that could be embraced by the carriers. The most promising of these now commanding attention is the trailer-on-flat-car plan. If it is carefully handled and worked out in such manner as not to confuse or imperil the rate structure, this idea will produce savings and earnings for both rail and motor carriers. They must enter upon the operation, however, with mutual trust, a willingness to accept joint rate and route arrangements, and a realization that only cold objectivity and impartiality can determine which of the several kinds of trailer-on-flat-car plans is best."

Mr. Knudson went on to say that he personally favors the New York Central plan, "because it unites two great types of carriers in a joint enterprise," and "this will spell success."

Earlier, in his discussion of competition, Mr. Knudson had described "the shipper" as "the real beneficiary of good competition," but also as the possible "real victim of any bad competition" of a type which "depletes or debilitates a carrier . . . or trends back toward a monopoly." Yet competition, he conceded, "can at times become confused," sometimes by action of shippers themselves in "whipsawing" one kind of carrier against another, and sometimes by the tendency of carriers to regard traffic as "theirs by virtue of certain rights that have accrued to them traditionally or otherwise."

"TIME TO JOIN FORCES"

"Obviously, any agency which is handling all the business where much of the cost is joint and where prices are established by regulation which considers the value of the commodity handled, what the traffic will bear, and the 'rate of return' of the carrier, is making money on some traffic and losing it on others. Obviously any other agency can select certain traffic, reject the rest, and handle the selected traffic cheaper than the common carrier agency. Obviously, also, the effect of this on the common carrier is to increase the cost of handling everything else . . . Here is, indeed, a common cause for all common carriers. . . .

"Common carriers, regardless of type, cannot live if they on the one hand are regulated as if they were a monopoly and on the other hand are subjected to the raids of selective competition. There is no question about that, but the question is, are we to have common carriers? If the answer is yes, then we must protect them from the cut-throat competition of private carriers. If the answer is no, then we may remove all economic regulation of transportation, save the tax money required to support the regulating agencies, and rid ourselves of a headache. . . .

"Certainly our technological competition should continue . . . but meanwhile let us join forces to explain to the public that if it permits the raiding of common carriers by private carriers to go on, it will have to face the inevitable result of having common carriers die or become parasites on the economy instead of builders of value and wealth. If the public does not want to see this happen, it must either equalize regulation or remove it."—*H. E. Bixler.*

Are We to Have Common Carriers?

Then, says Bixler, "protect them from cut-throat competition"; otherwise, "remove all economic regulation"

An outspoken demand that regulation of common carriers be "equalized or removed" was voiced by Herbert E. Bixler, assistant to president of the Boston & Maine, in addressing Northeastern University's third annual transportation and Traffic Management Conference at Boston.

"If," he said in part, "common carriers are to operate efficiently in the public interest, private transportation of freight must be forbidden unless it is clearly shown that common carriers cannot do the job.

"Just as ownership of freight by railroads is forbidden, so must ownership of vehicles by the freight be forbidden. Exemption of certain commodities must be done away with. If it is logical for a farmer's truck taking his products to market to be exempt, it does not follow that a refrigerated truck hauling half a carload or more of oranges from Florida to Boston should be exempt. Common carrier trucks must on the one hand be protected from private trucks and on the other hand forced to be truly common carriers. Railroads require exactly the same protection if—and only if—they are to be regulated as common carriers.

"Trucks must be regulated just as railroads are. If they are to be permitted to operate they must show a real requirement of public convenience and necessity. If the only demand is for an improved service then they should be required to charge a premium rate, as the Railway Express Agency is required to do. Railroads must be forbidden to provide distribution services for which they are not suited, where volume is light and distances are short, instead of being required as they are to provide branch line services, the need for which has been made obsolete by development of motor trucks. . . .

"If not this, then . . . let all economic regulation be removed. (This has nothing to do with safety regulation.) Let all common carriers, rail, highway or any other type, cease to be such and compete in an open market for their business just as any manufacturer does. This will undoubtedly result in giving the producer of large volumes of desirable freight an advantage, as well as discontinuance of some 'accommodation' services for which the user does not pay the cost. This seems drastic, but is much less so than it would have been 50 years ago, since there is now no lack of competition in transportation.

"Most people make the mistake of thinking of the fight between railroads and trucks as a technological battle. Because railroads appear to be older it is assumed that trucks made them obsolete. Actually highways are older than railroads; motorization of highway vehicles no more makes railroads obsolete than does dieselization of railroad locomotives make highways obsolete. Both are important and in this important question of regulation of common carriers they have a common problem."

THE WORLD'S FIRST "SPEEDWALK," shown here nearing completion, is now in operation in the Hudson & Manhattan portion of one of the passageways connecting the H&M and Erie stations in Jersey City, N. J. The "Speedwalk," designed by the Goodyear Tire & Rubber Co. and Stephens - Adamson Manufacturing Company, is a rubber and fabric belt 5/8 in. thick and 5½ ft wide, driven on a bed of closely spaced steel rollers by a 20-hp General Electric motor. The H&M installation is 227 ft long and negotiates a 10% grade for 137 ft. It moves at 120 ft a minute, and has a total capacity of 10,800 passengers per hour.

Public Relations

AAR's Broadcasting Plans Now Indefinite

The future plans of the Association of American Railroads in the broadcasting field "are indefinite at the present time."

This was reported by Chairman A. H. Gass of the association's Car Service Division in his latest review of "The National Transportation Situation." Mr. Gass also confirmed reports (*Railway Age*, May 3, page 5), that the "Railroad Hour" radio show was nearing the end of its days.

"The 'Railroad Hour,'" he said, "will go off the air on June 21 when a presentation of 'New Moon,' co-starring Gordon MacRae and Lucille Norman, closes a series of 299 consecutive weekly performances of . . . the popular . . . program."

Caverly Lauds "Grass Roots" Public Relations

American railroads are in an enviable position because they can go directly to the "grass roots" level to establish public good will, Gardner A. Caverly, president of the Rutland, said in Albany, N. Y., recently. Mr. Caverly spoke at a dinner given by the Railroad Community Committee of the Capital District to honor railroad personnel who had just completed a special course in community relations at Russell Sage College.

"While I have a very high regard for the power of the press, radio and television," he said, "I nevertheless subscribe wherever possible to the media of personal contacts. Where else can you find an industry better located, from tiny hamlet to metropolitan center, from Maine to California and from Canada to the Gulf of Mexico? Every major and many minor centers of population are our home towns. If each of our employees could be as fully imbued as you are with the idea that their future rests with the future of our industry, we would then have gone a long way toward placing railroads first in the matter of community relations."

Mr. Caverly cited, as a situation "where favorable public relations paid off," the Rutland's meetings with public officials and chambers of commerce to discuss financial problems attendant upon any restoration of passenger service, which had been discontinued after a strike in 1953. As a result of the meetings, the chambers appeared at a New York State Public Service Commission hearing in opposition to restoration of such service by the road. "I doubt very much," Mr. Caverly said, "that this cooperation would have been forthcoming except for a great deal of spadework. . . We knew our customers and their neighbors and they knew us to the extent that they had faith and confidence in what we told them."

STILL NO DECISION IN NYC PROXY FIGHT

No decision had been reached, as this issue of *Railway Age* went to press, in the proxy contest for control of the New York Central.

The company's annual stockholders' meeting, which had begun at Albany, N. Y., on May 26, and been recessed first to June 1 and subsequently to June 8, was reconvened on schedule on the latter date. The June 8 session, however, lasted only about 10 minutes—long enough for inspectors of the election to report that they had been unable to finish tabulating votes. They indicated, however, that they might be able to make a final report on Monday, June 14. No interim statements on progress of the contest between the road's present management and Robert R. Young and his associates had been released up to press time.

Competitive Transport

Household Goods Truckers Get Released-Rates Plan

The Interstate Commerce Commission has authorized publication of truck commodity rates for transportation of household goods and charges for storage and other services, when the shipper releases the value and thus

limits the trucker's liability on the property.

In effect, the order permits household goods carriers, in cases where the shipper signs a release on the value of his property, to assess somewhat lower charges than would apply if the carrier were responsible for the full value of the property. The released rates order is No. MC-362.

State May Tax Flight Equipment of Air Lines

States may levy apportioned property taxes on flight equipment of interstate air lines serving points within their boundaries.

The United States Supreme Court has upheld the levying of a Nebraska tax of that type against flight equipment of Braniff Airways. The court's decision was embodied in a June 1 opinion by Justice Reed. Justices Jackson and Frankfurter dissented.

Court Puts 180-Day Limit On Temporary Truck Rights

Temporary operating authorities held by numerous motor carriers have been brought under a cloud by a decision of a three-judge federal court.

The decision held that the Interstate Commerce Commission has no authority to authorize temporary operations beyond the 180-day term fixed for the initial grant of such authority by the Interstate Commerce Act's Section 210a(b). The three-judge court sat in the United States District Court for the District of Massachusetts, and the opinion was by Circuit Judge Hartigan.

The case involved the appeal of Stone's Express, Inc., from commission orders extending, beyond the initial 180 days, a temporary authority under which St. Johnsbury Trucking Company has been operating under rights it plans to acquire from Hinsch Transportation Company.

It was indicated at the commission that some 400 operations under temporary rights are now continuing beyond the 180-day period pursuant to extensions granted by the commission. All would have to be discontinued unless the court ruling is reversed by the United States Supreme Court or Section 210a(b) is amended.

Proposed Truck Commodity Statistics Again to Fore

A railroad petition has served to revive the Interstate Commerce Commission's two-year-old proposal to require Class I common and contract truckers to report freight commodity statistics.

The petition was filed by the Association of American Railroads on May 20. It asked that the proposed reporting regulations be made effective without further delay, but expressed opposition to that phase of the proposal under which individual returns of the truckers would not be open to public inspection. The commodity statistics reports of individual railroads are open to public inspection.

On June 8, the commission issued a notice which cited the AAR petition and went on to advise interested parties that they might file "written arguments or presentations" on or before June 21. The notice went on to say that such presentations would have consideration along with the AAR petition.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended June 5, which included the Memorial Day holiday, totaled 612,315 cars, the Association of American Railroads announced on June 10. This was a decrease of 76,977 cars, or 11.2 per cent, compared with the previous week; a decrease of 163,174 cars, or 21 percent, compared with the corresponding week last year; and a decrease of 71,932 cars, or 10.5 per cent, compared with the equivalent 1952 week. The 1952 week did not include a holiday, but loadings during it were affected by a strike in the steel industry.

Loadings of revenue freight for the week ended May 29 totaled 689,292 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, May 29

District	1954	1953	1952
Eastern	114,439	133,956	117,172
Allegheny	127,123	162,420	144,189
Pocahontas	48,588	56,797	54,603
Southern	117,111	127,020	113,204
Northwestern	117,058	129,492	114,426
Central Western	110,395	118,230	103,101
Southwestern	54,578	58,840	50,165
Total Western Districts	282,031	306,562	267,692
Total All Roads	689,292	786,755	696,860
Commodities:			
Grain and grain products	45,459	49,568	37,628
Livestock	6,395	7,754	6,819
Coal	105,916	127,951	119,196
Coke	7,395	14,567	15,016
Forest products	42,667	44,206	36,840
Ore	72,033	91,326	83,038
Merchandise l.c.l.	61,740	67,743	61,436
Miscellaneous	347,687	383,640	336,587
May 29	689,292	786,755	696,860
May 22	681,967	769,618	761,705
May 15	677,581	779,805	754,448
May 8	647,954	765,411	719,859
May 1	647,925	781,499	744,724
Cumulative total, 22 weeks	13,630,777	15,722,963	15,930,187

In Canada. — Carloadings for the seven-day period ended May 21 totaled 72,963 cars, compared with 69,748 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
May 21, 1954	72,963	28,438
May 21, 1953	73,907	32,657
Cumulative Totals		
May 21, 1954	1,334,726	574,318
May 21, 1953	1,473,744	641,061

March Accidents

The ICC has made public its Bureau of Transport Economics and Statistics' preliminary summary of "steam" railway accidents for March and this year's first three months. The compilation, subject to revision, follows:

Item	Month of March 1954	Month of March 1953	3 mos. ended with March 1954	3 mos. ended with March 1953
Number of train accidents*	627	696	1,928	2,232
Number of accidents resulting in casualties	41	43	129	148
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	55	65	143	168
Injured	60	61	164	181
Passengers on trains:				
(a) In train accidents*				
Killed	..	18	..	18
Injured	..	47	24	149
(b) In train-service accidents				
Killed	..	1	2	4
Injured	139	134	401	433
Travelers not on trains:				
Killed	..	..	2	1
Injured	83	63	219	218
Employees on duty:				
Killed	15	17	57	67
Injured	1,328	1,535	3,972	4,713
All other nontrespassers:**				
Killed	136	147	382	421
Injured	387	469	1,383	1,545
Total — All classes of persons:				
Killed	206	248	586	679
Injured	1,997	2,309	6,163	7,239

*Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of $350 or more to railway property in 1953. Beginning January 1, 1954, the minimum will remain at $350. Only a minor part of the total accidents result in casualties to persons, as noted above.

**Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows:

Persons:				
Killed	135	139	375	405
Injured	267	329	998	1,099

In Congress

Liberalizers Would Destroy Pension System, Fort Warns

Enactment of proposed legislation to liberalize retirement benefits for railroad employees "would completely destroy" the railroad retirement system, according to J. Carter Fort, vice-president and general counsel of the Association of American Railroads.

Mr. Fort sounded this warning in recent testimony before the House Interstate and Foreign Commerce Committee. He estimated that under provisions of HR 5269 and similar bills

the railroad retirement system would incur millions of dollars of new liabilities without additional funds being provided to meet them.

The Cost—The flat 15% increase in benefits, together with other provisions proposed in HR 5269, would add $235 million annually to costs of the retirement system, Mr. Fort stated. This would equal 4.7% of a $5-billion payroll and would increase costs of the retirement system by a little more than one-third, he added.

Quoting figures computed by the Railroad Retirement Board, which along with the Budget Bureau has recommended against giving favorable consideration to the bill, the railroad official warned that, should the legislation be passed, the retirement fund would be completely exhausted within a 21-year period.

HR 5269 would further add to costs, he pointed out, by reducing the permissive retirement age to 60 years for workers with 30 years of service, and by providing that those with 35 years of service could retire without regard to age.

Now in Red—Mr. Fort reminded the committee that the railroad retirement system is now operating at a $45-million annual deficit and declared that further burdening the system "would put total costs beyond any possible means of financing through payroll taxes and thus completely wreck the system and destroy the theory upon which it is based."

Rails Ask Senate Group To Kill Trip-Lease Bill

Railroad spokesmen last week warned the Senate Committee on Interstate and Foreign Commerce that enactment into law of the House-approved bill to end the Interstate Commerce Commission's power to ban trip-leasing of motor trucks would be a "tremendous step backward" in the field of regulation.

The spokesmen, who appeared at the committee's public hearings on the bill (HR 3203) were Thomas L. Preston, general solicitor of the Association of American Railroads, and Carl Helmetag, Jr., assistant general counsel of the Pennsylvania.

Untimely—Mr. Preston called the bill "untimely" in view of the fact that the ICC has postponed the effective date of its trip-lease ban until March 1, 1955. The AAR solicitor also noted that the commission has excluded permanently from the ban all "farm trucks" when they are trip-leased for journeys home from points to which they have hauled commodities, the movements of which are exempt from regulation under the Interstate Commerce Act's so-called agricultural exemptions (*Railway Age*, December 7, 1953, page 14).

Mr. Helmetag said the commission issued its leasing rules after an investigation in which it found that trip-leasing and effective regulation of the motor carrier industry were "totally incompatible." Farm support of the bill "loses all justification" in view of the commission action which excluded "farm trucks," Mr. Helmetag added.

Vitally Interested — "The railroads," he continued, "are vitally interested in HR 3203 because, if enacted, it will worsen a situation which has already deteriorated to the point where it seriously threatens the ability of the railroads to survive. . . . If the railroads ever attempted he loose and regulation-avoiding operations that have been widespread in the motor carrier industry while trip-leasing has flourished, the legislation before this committee would not be to curtail the commission's powers but rather to broaden and extend them."

Demand for Senate passage of the trip-leasing bill was a factor in that body's recommittal of the railroad-supported time-lag bill which is designed to insure prompt increases in carrier rates as costs rise (*Railway Age*, May 24, page 13). Meanwhile, the Regular Common Carrier Conference of American Trucking Associations is also opposed to HR 3203, because it thinks leasing rules should be left to the ICC.

Railroad Retirement Dual Benefits Bill Is Passed

Congressional action on the bill to repeal the so-called dual-benefit provisions of the Railroad Retirement Act was completed June 2 when the Senate passed the measure, HR 356, which was approved by the House last year. The bill was opposed by the railroads.

The dual-benefit provisions were added to the Retirement Act in 1951. They require that the railroad retirement annuity or pension of an individual must be reduced if such individual has creditable railroad service before 1937 and is receiving, or is entitled to receive on application, an old-age benefit under the Social Security Act.

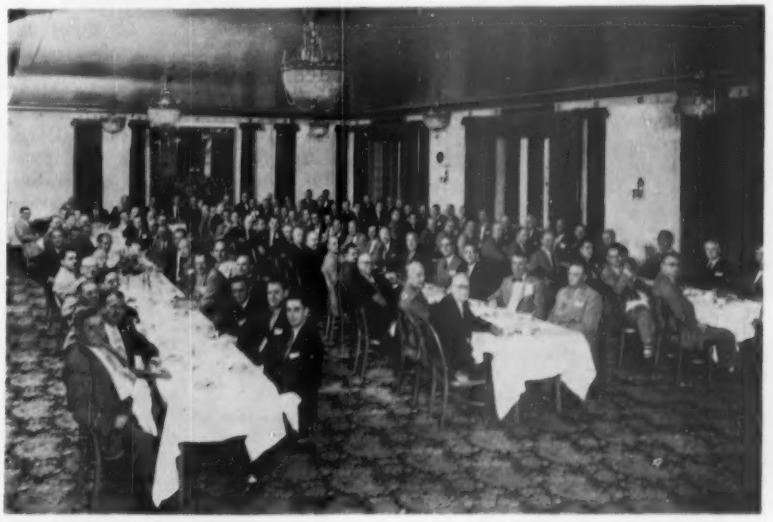
Labor & Wages

BofLF&E, BRT, to Seek Further Wage Increases

The Brotherhood of Locomotive Firemen & Enginemen has announced that it will seek a wage increase of 28 cents per hour for all its members now working on a 40-hour week basis. The brotherhood's demand will be accompanied by a request for minimum pay of $18 per day for firemen in passenger and freight service, and of $20 per day for enginemen represented by the BofLF&E.

The $18 and $20 daily minima were part of the brotherhood's wage demands served on the carriers last fall, but were not included in the settlement of that demand for the so-called "trainman package," i.e., inclusion in basic wage rates of 13 cents per hour granted under escalator clauses, an additional 5 cents per hour increase, and lengthened vacations for men with 15 years or more of service.

New Trainmen Demands—A new set of demands for wage increases and working rule changes has come also



A DINNER in honor of the Track Committee of the American Railway Engineering Association was given in St. Louis on May 11 by supply companies with representation in that area. During the day the committee had held a meeting in the city, and on the following day its members, along with other guests, were taken on an inspection trip of properties of the Terminal Railroad Association of St. Louis.

from the Brotherhood of Railroad Trainmen. President W. P. Kennedy has announced that his group would "press militantly for correction of all inequities," and specifically mentioned "murderously long freight trains." For all members, the union now seeks: Payment of straight time when any of seven holidays falls on a work day, although no service is performed; payment of time and one-half plus straight time if service is performed on any of such days; and payment of time and one-half plus regular vacation pay for any service performed during an assigned vacation period.

Mr. Kennedy said his group seeks correction of pay "inequities" for yard service employees who chose the five-day work week under terms of the May 1951 agreement, but who did not get 48 hours pay therefor. Also sought are: A shift differential for second-trick yardmen of six cents per hour; a similar nine-cent differential for third-trick work; a $2 basic day differential for yard foremen over the amount paid yard helpers; and premium pay for road service on "excessively long and dangerous" freight trains (anything in excess of 70 cars, according to Mr. Kennedy).

Promotion, Salary Studies Undertaken by CNR

Work of supervisory personnel in freight and passenger departments of the Canadian National in Chicago is the subject of a new study by some 30 senior officers of the CNR's U. S. lines and personnel officers from system headquarters in Montreal. The Chicago studies are the start of a general program which the road has termed "systematic performance appraisals."

The purpose of the work evaluation studies is to find the best candidates for promotion to managerial positions as such posts become available through retirement or death. The program is designed to uncover individual talents and to develop potential abilities of men studied so they will make better executives, G. N. Daffern, one of the system personnel officers, explains. The program also has been designed to improve salary administration so remuneration will better reflect a man's performance and serve as an incentive for further effort, he reports.

During the program, committees of three or more superior officers study the work of each supervisor. They consider all aspects of his work and his job personality in making their evaluation. An appraisal form being used in the study covers such subjects as the man's ability to plan and organize work; to delegate responsibilities; to aid and develop subordinates; and to get along both with his associates and the public. It also considers such factors as self-improvement, initiative, leadership qualities, analytical ability, and vision.

Traffic

Army Port Traffic Agency To Be Moved to Memphis

Activities of the Port Traffic Branch of the Office of the Army's Chief of Transportation will be transferred from Washington to Memphis, effective August 28. The branch, to be redesignated the Port Traffic Agency, will operate under jurisdiction of the chief of transportation.

Functions of the agency, like those of the branch, will include release of export cargo to the several Army ports of embarkation. Also, it will compile all agency operating records pertaining to port-bound traffic.

Eastern Roads Propose Tariff Simplification

E. V. Hill, chairman of the Traffic Executive Association—Eastern Railroads, has proposed a short-cut method of eliminating the dual system of class rates which is now in effect.

The dual system came about when the 12 tariffs publishing class rates prescribed by the Interstate Commerce Commission in the 28300 case failed to supplant entirely the tariffs in which such rates were formerly published. The old tariffs have remained in effect to take care of traffic subject to classification exceptions.

Mr. Hill's proposal was made to the National Industrial Traffic League in a letter to J. W. Peters, chairman of the league's Rate Construction and Tariffs Committee. It contemplates canceling all existing exceptions to classification ratings within Eastern territory and establishing in lieu thereof "the nearest approximate percentage of Docket No. 28300 Class 100 or commodity column rates, as may be required, to continue the present levels of rates."

Meanwhile, exception rates which cannot be thus integrated would be published in a single tariff that would supplant the 52 old class rate tariffs now effective in Eastern territory for exception-rated traffic.

As Mr. Peters pointed out in a circular to league members, the proposed integration would result in "some modest increases and reductions in rates because of changes in the system of groupings." Mr. Hill's letter had this to say: "In view of the great benefits to be derived by shippers . . . it is difficult for the railroads to believe that any shipper . . . would object to the consummation of our new plan once it is understood."

RALPH BUDD RETIRES JUNE 15

Ralph Budd, former president of the Burlington and, since 1949, chairman of the Chicago Transit Authority, retires from the latter position on June 15. Mr. Budd declined reappointment to the transit post in September 1952, but has continued to serve until a successor could be named.

Since retirement from the Burlington, Mr. Budd has guided a $90-million program of transit modernization in Chicago. Though this program is not complete, Mr. Budd apparently feels that it is sufficiently advanced to permit his long-contemplated retirement. Of his accomplishments in the transit field, the Chicago Tribune recently said: "It may be that his five years of service to CTA represent a greater personal triumph than his half-century on the railroad. The Burlington, after all, has been a profitably and intelligently operated property for generations. It had able presidents both before and after Mr. Budd. The CTA, on the other hand, was an experiment and a faltering one when he took over. If it succeeds, as it now appears that it will, the difference between success and failure may well have been his guidance."

Rates & Fares

Furlough Fares Extended

Reduced railroad fares for military personnel in uniform traveling at their own expense will be continued until January 31, 1955. They had been scheduled to expire June 30.

The extension was announced by Earl B. Padrick, chairman of the railroads' Interterritorial Military Committee. The furlough fares are round-trip coach rates on the basis of 2.025 cents per mile or less. They are exempt from the 10% fare tax.

Katy Slashes Coach Fares

Round-trip coach fares of only 1.5 cents a mile are being introduced by the Missouri-Kansas-Texas on June 15 in an effort to regain traffic lost to the passenger automobile. The low fares, an experiment to cover a period of six months, are to be placed in effect between points in Texas only—from Denison through Fort Worth, Dallas, Waco and Austin to San Antonio.

It costs about six to seven cents a mile to travel by family car, the Katy figures; hence with the new round-trip fares, travel by rail will be cheaper than driving. An announcement cited a round-trip fare of $8.80 between Dallas and San Antonio—compared to the present $13.20 (at 2.25 cents a mile) and $11.30 for the same trip via bus. J. F. Hennessey, Jr., vice-presi-

dent in charge of traffic, says that with this one-third reduction in fares, it will be necessary to double traffic to break even. He is confident that this can be done.

SP Family Fares—The Southern Pacific has obtained permission of the Interstate Commerce Commission to put the western road family fare plan (*Railway Age*, May 17, page 8) into effect on June 16. The plan will apply throughout the system except within and between points in California, Arizona, Nevada and Oregon where special fares, lower than the family plan, are already in effect. The SP will also apply the plan to extra fare charges which are in effect on certain of its premier trains.

Ultra-Low Chicago-Twin Cities Excursion Fares Set

Experimental excursions, featuring deluxe equipment and ultra-low fares, will be offered over the week-end of June 18-20 in both directions between Chicago and St. Paul-Minneapolis by three railroads—the Milwaukee, the Burlington and the North Western. The round-trip fare, in each case, will be $10 (under 1¼ cents per mile), plus tax. The Milwaukee and the North Western will also offer an $8 round-trip fare between Milwaukee and the Twin Cities.

Milwaukee Plans—The Milwaukee, which made the first announcement of the excursion, will use some of its streamlined "Hiawatha" equipment that normally lays over between daylight runs. Its excursion trains, for example, will each carry two full-length dome-lounge cars, one of which normally operates in each of the four equipment sets used in Chicago-Twin Cities "Hiawatha" service. Regular dining cars and the cafe-lounge in the lower level of each dome car will be operated throughout the night excursions to provide snack, beverage and breakfast service.

Tickets are being sold on an advance, seat reservation basis; and schedules call for Friday and Sunday evening departures in both directions, with arrivals early enough on Saturday and Monday mornings to allow equipment to be readied for regular service those same mornings.

More such excursions may be considered, a Milwaukee spokesman said, if results of these first efforts prove them to be justified. He also said passengers may avail themselves of the excursion between Chicago and certain station stops in western Wisconsin and southern Minnesota. The railroad is calling the excursion the "Hiawatha Coach Cruise."

Other Roads Follow—The Burlington and the Chicago & North Western have also announced similar excursion fares between the same cities over the same weekend. Operation of their services, however, will be somewhat different. The Burlington plans to carry all its excursion traffic in coaches added to the regular overnight Twin Cities-Chicago service on the streamlined "Blackhawk-Western Star." Two extra dome coaches will be added to the consist—one in each direction. All equipment will be streamlined and light weight. Passenger Traffic Manager Julius Alms said a careful check will be made of passengers handled to determine if more such excursions might be feasible.

The C&NW will take coaches from its daylight streamliner, "The 400," and operate them on the overnight "North Western Limited" both Friday and Sunday nights. Excursionists will have the option of returning on any C&NW train up to and including the returning "North Western Limited" on Sunday. A passenger department spokesman said it was impossible to forecast what effect this plan might have on regular passenger travel.

People in the News

Holland Succeeds Cabot On Pan-Am Rail Group

Henry F. Holland has been appointed by President Eisenhower to be a member of the United States National Commission in the Pan-American Railway Congress Association. Mr. Holland is also assistant secretary of state for Inter-American affairs.

In both positions he is successor to John M. Cabot, who is now United

SUPERVISORY STAFF OF INTERSTATE COMMERCE COMMISSION'S NEW BUREAU OF SAFETY AND SERVICE

As reported in *Railway Age* June 7, page 15, the Interstate Commerce Commission's New Bureau of Safety and Service has absorbed the three former bureaus of Safety, Locomotive Inspection and Service. The accompanying photographs introduce the new bureau's supervisory staff.

CHARLES W. TAYLOR (left), acting director of the new bureau; and

S. N. MILLS, assistant director in charge of Section of Railroad Safety.

CHARLES H. GROSSMAN (left), assistant director in charge of the Section of Locomotive Inspection, and director of locomotive inspection under Locomotive Inspection Act; and CHARLES L. HARRISON, assistant director in charge of the Section of Car Service.

States ambassador to Sweden. The next Pan-American Railway Congress is scheduled to be held in Buenos Aires, Argentina, in 1956.

Organizations

F. B. Whitman, president of the Western Pacific, and L. L. Perkey, manager, department of organization, Standard Oil Company of California, will address a June 21 management session during the opening day of the five-day summer and Pacific general meeting of the **American Institute of Electrical Engineers** in Los Angeles. Mr. Whitman will discuss "Improving Employee Relations," and Mr. Perkey's subject will be "Organization Planning—the Hard Work and Common Sense Approach."

The 89th regular meeting of the **Great Lakes Regional Advisory Board** will be held in the Park Place Hotel, Traverse City, Mich., June 23-24.

The **Traffic Club of St. Louis** has elected the following officers: President—L. M. Dean, Husmann & Roper Freight Lines; vice-presidents—L. V. Gudiswitz, Graham Paper Company, Charles W. Brandenburg, Chesapeake & Ohio, Hugo Waninger, Anheuser-Busch, Inc., Frank A. Frawley, Baltimore & Ohio, and Melvin E. Iten, Monsanto Chemical Company; and secretary-treasurer — Stephen Hirschmugl, Cupples Company.

SOME OF THE NEW OFFICERS of the National Association of Railway Business Women, photographed during the association's recent convention at Miami Beach, are Mrs. Florence Fickenworth, Indianapolis Union, Indianapolis (left), second vice-president; Mrs. Bessie Ross, Illinois Central, Chicago (center), president; and Mrs. Ann M. White, Reading, Philadelphia (right), corresponding secretary. The NARBW now has nearly 6,500 members, organized in 40 chapters.

Equipment & Supplies

FREIGHT CARS

The **Transportation Materiel Command,** Marietta, Pa., has ordered from the Magor Car Corporation 825 40-ton box cars and 565 40-ton gondola cars. Receipt of bids by the Transportation Corps for construction of the box cars and of 365 gondola cars was reported in *Railway Age*, May 3, page 48.

LOCOMOTIVES

The **Northern Pacific** has purchased five four-unit 7,000-hp road freight locomotives from the Electro-Motive Division of General Motors Corporation at a cost of about $3.5 million. Delivery is scheduled for September and October. The new units will replace 6,000-hp units now assigned to mountain service west of Livingston, Mont., whih will be reassigned to main-line freight service between Northtown, Minn., (Minneapolis), and Dilworth.

Supply Trade

Alco Anticipates Need for Atomic Energy Equipment

Because of the growing importance of its atomic energy equipment business, American Locomotive Company has established a new atomic energy projects department, to be supervised by Kenneth Kasschau, who has been appointed manager of engineering, effective July 1.

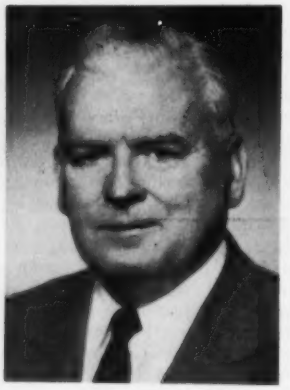
Mr. Kasschau is now director of the research and medicine division of the Atomic Energy Commission's Oak Ridge operation. He had previously been a member of the Nuclear Energy for Propulsion of Aircraft project of the Fairchild Engine & Airplane Corp. and prior to that was associated with the Wright Aeronautical Corporation.

Mr. Kasschau will be located at Schenectady and will report to Martin Ettington, general manager of engineering, who has stated that the new department will be expanded as required for new projects. It will be responsible primarily for developing and promoting principles of practical equipment design for atomic energy applications.

ROBERT S. MORTON, who has been named vice-president of the Morton Manufacturing Company at Chicago.

T. C. GRAY, director of engineering of the Pullman-Standard Car Manufacturing Company, has been elected vice-president in charge of engineering, at Chicago.

Rosser L. Wilson, chief engineer of the **Brake Shoe & Castings** division of **American Brake Shoe Company,** has been appointed vice-president, engineering, succeeding **Robert B. Pogue,** who has reached



Rosser L. Wilson

retirement age, but will continue as consulting engineer. **John F. Ducey,** vice-president of the division, has been transferred from San Francisco to New York headquarters. **William N. Hulme,** sales representative, has been

(Continued on page 77)

The RIGHT way on the Right-of-Way!

Fuel injection equipment is truly the heart of diesel performance and plays a mighty important part in efficient railroad operation.

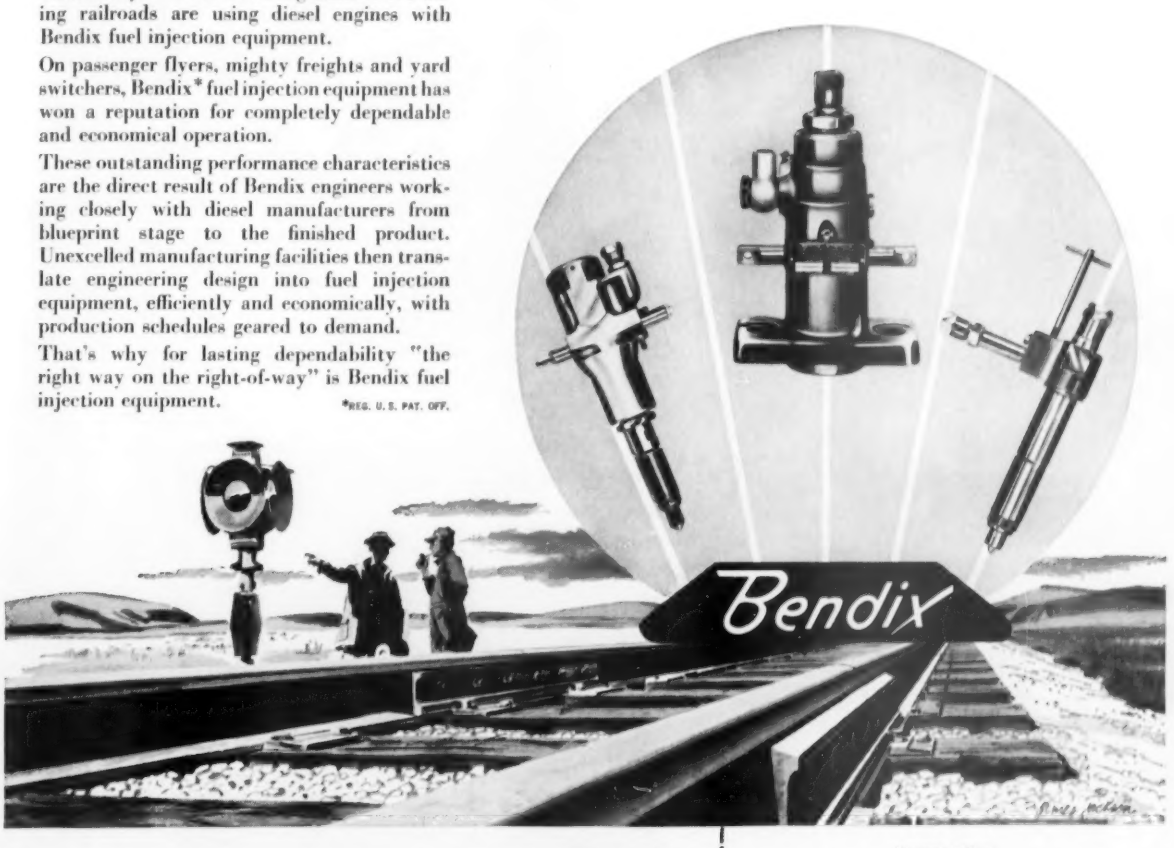
That's why an ever-increasing number of leading railroads are using diesel engines with Bendix fuel injection equipment.

On passenger flyers, mighty freights and yard switchers, Bendix* fuel injection equipment has won a reputation for completely dependable and economical operation.

These outstanding performance characteristics are the direct result of Bendix engineers working closely with diesel manufacturers from blueprint stage to the finished product. Unexcelled manufacturing facilities then translate engineering design into fuel injection equipment, efficiently and economically, with production schedules geared to demand.

That's why for lasting dependability "the right way on the right-of-way" is Bendix fuel injection equipment.

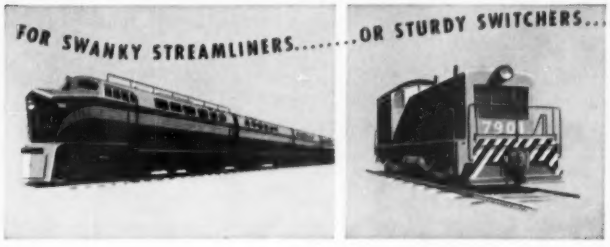
*REG. U. S. PAT. OFF.



SCINTILLA MAGNETO DIVISION OF Bendix AVIATION CORPORATION
SIDNEY, NEW YORK

Western Office:
582 Market Street, San Francisco 4, California

Export Sales: Bendix International Division of Bendix Aviation Corporation, 205 East 42nd Street, New York 17, N. Y.



YOU CAN DEPEND ON

BENDIX*

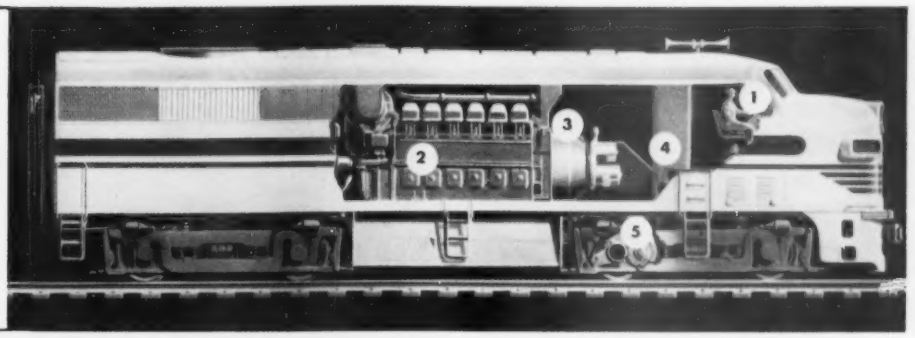
FUEL INJECTION EQUIPMENT

KEY TO RAILROAD PROGRESS . . . ELECTRICAL PIONEERING
4201
4201
By the time Junior grows up, pioneering by the railroads and companies like General Electric to bring better service will show advancements as great as the step from steam to the modern diesel-electric.
GENERAL ELECTRIC

ELECTRICITY TURNS THE WHEELS OF MODERN LOCOMOTIVES

HOW IT WORKS

In a diesel-electric, when engineer moves throttle (1), diesel engine (2) turns generator (3), producing electricity. Control unit (4) sends electricity to axle-mounted traction motors (5) which turn wheels.



HOW RAILROADS PUT ELECTRICITY TO WORK TO GIVE YOU A FASTER, SMOOTHER RIDE

G-E electrical pioneering speeds railroads' bold program to make service even better

The locomotive of today, the diesel-electric, uses electricity to turn the wheels. This smooth-flowing, easily-controlled electric power gives diesel-electrics the versatility either to haul mile-long freights easily or speed crack passenger trains at 80-115 mph . . . with greater economy than ever before.

AN EXPERIMENT THAT PAID OFF. Just 30 years ago, when General Electric supplied the generator, traction motors and control for the nation's first diesel-electric, this type of motive power was often regarded as another "experiment." But the railroads were quick to see the advantages of this new application of electric power, and through the years have boldly invested in diesel-electrics. During these years General Electric developed and perfected G-E equipment for this new type of motive power. Other G-E products—from electric switch heaters to giant generating equipment—help the railroads make even better the vital services they render to the country.

G.E. HELPS FURTHER RAIL PROGRESS. As the nation grows, railroads haul more people, more freight. And as rails grow, G-E research and engineering will further this progress, just as it has since 1878, when Edison put electricity to work for railroads in his Menlo Park Express. *General Electric Co., Schenectady 5, N. Y.* 115-1

Progress is our most important product

GENERAL ELECTRIC

BATTLE OF GIANTS on the Milwaukee Road, 1925. In this test of power, G-E straight electric locomotive (electrics have been used by railroads since 1893) won tug-of-war against two steamers.

1st DIESEL-ELECTRIC, built for Central R.R. Co. of New Jersey in 1924, was powered by G-E motors and control, and is still in service. Today, reliable General Electric equipment is used on locomotives all over the world.

G.E.'S CONTINUING SEARCH for a better way to turn the wheels (like test of new traction motor, above) has resulted in new developments like improved insulation and sealed traction motor bearings, all of which will make tomorrow's railroading even better.

THIS IS THE FIRST in a series of messages appearing in news and railroad magazines to give the public a better understanding of the vital role played by the nation's railroads in our everyday lives.

Handclasp of a friend-in-need

There's confidence in the very "feel" of the world famous C-O-TWO Squeez-Grip Carbon Dioxide Type Fire Extinguishers. The quick-acting "Squeez-Grip" fits your hand naturally like a handclasp... hangs right... carries right... works right. You're in complete command of the situation instantly... no fumbling... no fatigue.

From the non-conducting, shatterproof discharge horn to the high strength, durably finished cylinder, you get top quality construction that results in a lifetime of satisfactory service. Because of the very few working parts and corrosion resistant materials throughout, the total cost to you over the years is less than other initially lower priced makes... fire after fire, recharge after recharge, without trouble.

It's not hard to see, when you fully compare and try, why C-O-TWO Squeez-Grip Carbon Dioxide Type Fire Extinguishers are your best buy for killing flammable liquid and electrical fires, as well as some surface fires involving ordinary combustible materials. Sizes range all the way from 2½ to 100 pounds capacity... all fully approved by the Underwriters' Laboratories, Inc., Factory Mutual Laboratories, Armed Forces and Government Bureaus.

With C-O-TWO Squeez-Grip Carbon Dioxide Type Fire Extinguishers the penetrating carbon dioxide is a clean, dry, non-damaging, non-conducting, inert gas... smothers fire instantly, leaves no after fire mess... harmless to equipment, materials and finishes... even food is still perfectly edible.

Act now for complete free information on these first-rate, sure-acting fire extinguishers. Remember fire doesn't wait ... get the facts today!

C-O-TWO

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

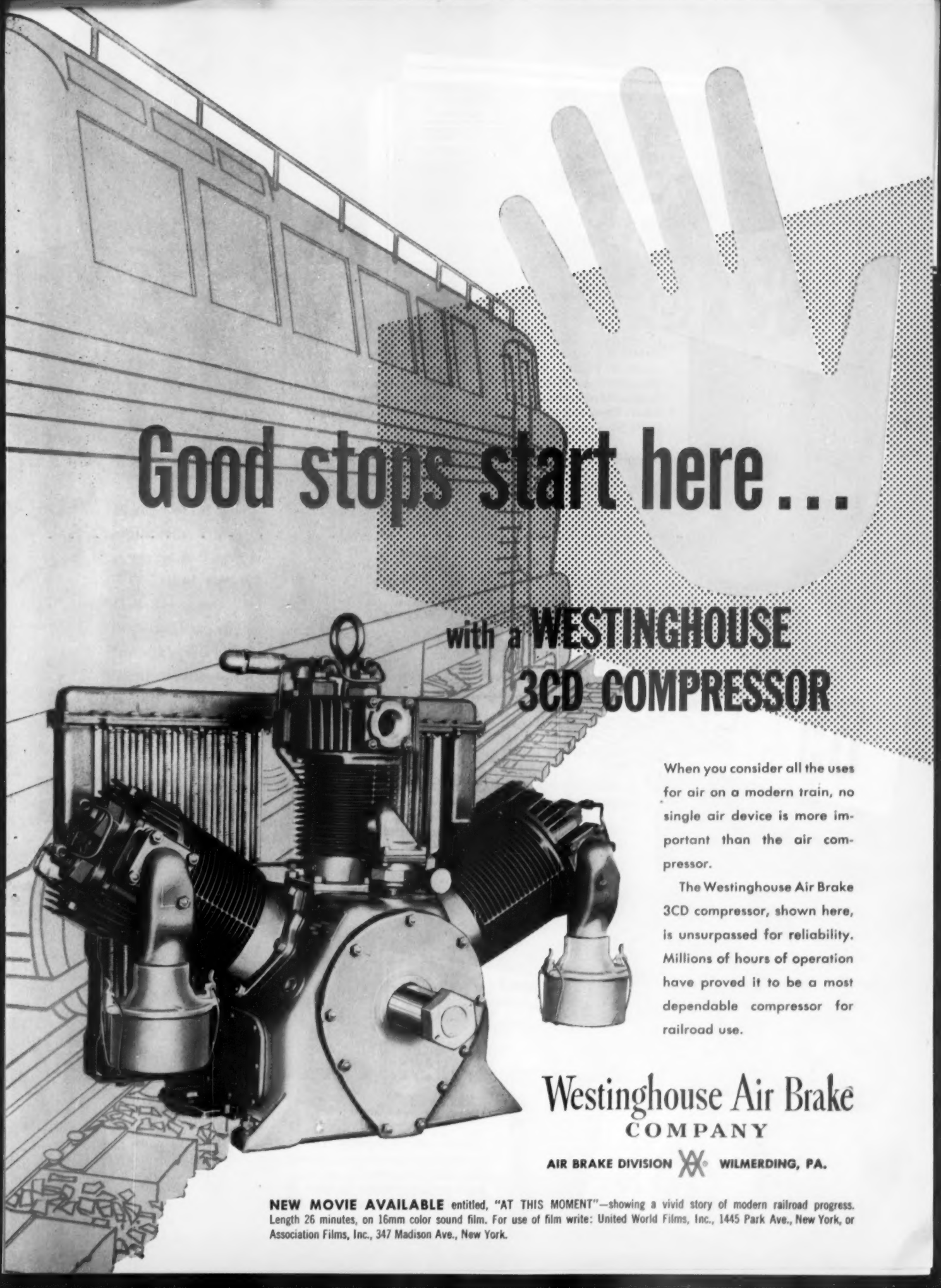
Squeez-Grip Carbon Dioxide Type Fire Extinguishers
Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY

C-O-TWO FIRE EQUIPMENT OF CANADA, LTD. • TORONTO 8 • ONTARIO

Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY



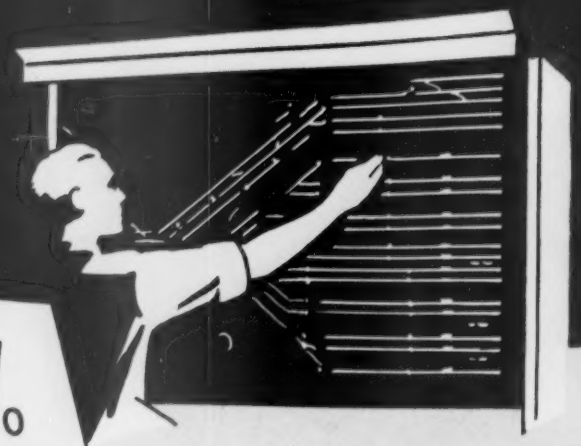
When you consider all the uses for air on a modern train, no single air device is more important than the air compressor.

The Westinghouse Air Brake 3CD compressor, shown here, is unsurpassed for reliability. Millions of hours of operation have proved it to be a most dependable compressor for railroad use.

Westinghouse Air Brake
COMPANY

AIR BRAKE DIVISION WILMERDING, PA.

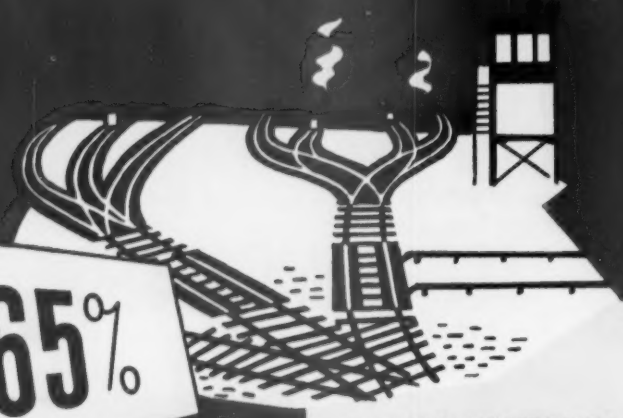
NEW MOVIE AVAILABLE entitled, "AT THIS MOMENT"—showing a vivid story of modern railroad progress. Length 26 minutes, on 16mm color sound film. For use of film write: United World Films, Inc., 1445 Park Ave., New York, or Association Films, Inc., 347 Madison Ave., New York.



55%

G-R-S ALL-RELAY INTERLOCKING lets you consolidate several old interlockings under the control of a single operator. Figure shown represents savings on one such consolidation. With G-R-S NX interlocking, the last word in simplified train direction, the operator pushes an entrance knob and an exit button. Presto! the best available route lines up—automatically.

LET'S



65%

G-R-S CAR CLASSIFICATION SYSTEMS, with all-electric retarders alone, have shown savings as high as 65 percent. Latest developments, automatic switching and automatic retarder control, speed car classification, protect lading, need only one control tower for even the largest yard.

115%

G-R-S CENTRALIZED TRAFFIC CONTROL is daily demonstrating its ability to save time otherwise lost in delivering train orders, in waiting for meets and passes, and in throwing switches by hand. Net returns on investments in 189 G-R-S cTc systems range from 20 up to 115 percent.

LOOK AT THE *record...*

as G·R·S completes its 50th year

50 years of railway signaling experience are worthwhile only if that experience can be used to improve railway operation.

We show here the returns produced by five G-R-S systems. These, and many other G-R-S installations, show the results you can expect from modern signaling. Of all the capital investments a railroad makes, probably none pays off so rapidly—or in so many ways. Operating and maintenance savings alone pay for G-R-S signaling systems in anywhere down to a year, or less. Handling of both freight and passenger traffic is faster. Tough schedules are more consistently maintained. Track capacity is increased. And—you make more efficient use of manpower.

Let us study your specific operating problem to determine just what signal modernization can—and cannot—do for you. Our report will be frank and reliable. There's a G-R-S district office within reach of your telephone.

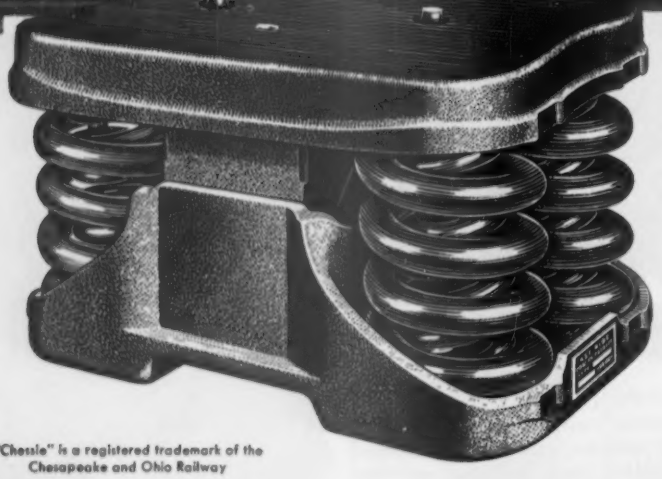
General Railway Signal Company

ROCHESTER 2, N. Y. • NEW YORK 17 • CHICAGO 3 • ST. LOUIS 1

G-R-S REMOTE CONTROL installations show large savings by consolidating control, relieving congestion, and increasing operating efficiency. The latest high-speed coding system, Quikode, needs only two line wires, transmits with speed practically equivalent to unit wire.

On the Chesapeake and Ohio, 6000 older cars are being equipped with ASF Ride-Control® Packages . . . so that

Now even "Chessie"®



"Chessie" is a registered trademark of the Chesapeake and Ohio Railway

The C&O is on record as being ". . . vitally interested in any plan that will move more goods, more efficiently." They found one answer in the self-contained, easy-to-install Ride-Control Package. In minutes, the Package-equipped car is ready to roll—almost as smoothly as a brand-new car on Ride-Control Trucks!

TEST RUNS—BEFORE AND AFTER PACKAGE INSTALLATION—SPEAK FOR THEMSELVES!

LADING DAMAGE INDEX: 43,877
Car mounted on old-type coil springs. Speed: 56 mph.
LADING DAMAGE INDEX: 3,085
Same car equipped with Ride-Control Packages. Speed: 84 mph.

can ride their freights!

"Chessie" has long been a symbol of smooth, safe travel on crack C&O passenger fleets. Today, more than ever before, the same applies to their freight service.

Current modernization on the C&O calls for bringing some 6000 older cars up to modern riding standards with ASF Ride-Control Packages. Result: *cars that ride over fifteen times more smoothly!*

But aside from the obvious mechanical advantages is the equally important question of *economics.*

In deciding to use Packages extensively, the C&O considered the fact that a car available only for restricted use represents a potential revenue loss . . . that a more efficient car pool is the answer to carrying more freight per dollar invested in rolling stock . . . that safer hauls at higher speeds build traffic.

Not *all* older cars are equipped with Packages, of course. Some are so close to retirement that they don't justify even this small an investment. So each older car is evaluated as to its over-all condition. In short, the C&O Package program is sound economics in *practice* as well as in theory.

Would a similar program be practical on your road? *The facts prove that it's worth investigating.* Now is the time to find out why a small per-car investment in Ride-Control Packages can pay you big returns!

Bring your older cars up to modern riding standards . . . with

ASF® Ride-Control® Packages

AMERICAN STEEL FOUNDRIES

410 N. Michigan Avenue, Chicago 11, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec

Tournatractor crosses tracks without blocking, does no damage to rails or switches. Big, low-pressure tires deflect to move load evenly over obstructions . . . do not chamfer ties, trip or damage block signals.

Tournatractor travels between jobs along right-of-way, cross-country, or over paved highway at speeds to 19 mph. A phone call is all it takes to get this "one-man work crew" in motion.

RUNS to maintenance jobs

BACKFILLS CULVERTS

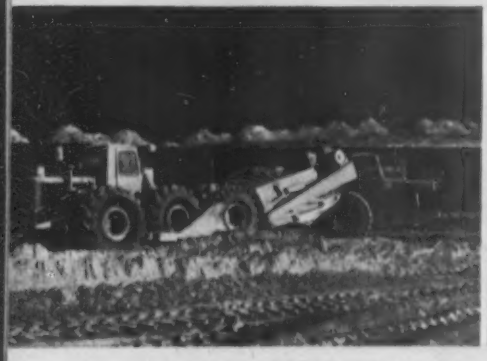
This is typical of the jobs that Tournatractor can handle without the help of other equipment. When mainliner barrels through, 186 hp tractor-on-rubber pulls to one side . . . minutes later is working again. No delaying of traffic . . . no moving of work train onto siding . . . no idle track gang.

STOCKPILES COAL

With dozer blade or scraper, 19 mph Tournatractor stockpiles coal, cinders, or ballast. Low-pressure tires compact and seal coal-pile against fire . . . do not grind coal into fines like tracks. Its 4 tires do a better job of compaction than crawler's 550 track parts . . . yet have less maintenance.

CLEARS LANDSLIDES

A minute after emergency occurs, Tournatractor is on the way. Dozing in 2nd gear (3.7 mph) and backing up at 8 mph, Tournatractor makes short work of a rock slide like this. As a result, trains can resume schedules faster . . . tracks are not blocked by work train. No planking is necessary.



PUSH-LOADS SCRAPERS

Teamed with Tournapulls on 800,000-yd. rail spur line in Montana, this Tournatractor pushed 42 loads of sand an hour. Load distance for 9½ cu. yds. averaged 75' . . . load time, 30 seconds. Torque converter enables Tournatractor to match scraper speed for fast, efficient loading.

PULLS HEAVY EQUIPMENT

Skidding heavy compressor is one of many pulling jobs your Tournatractor can handle. 186 hp diesel and 4-wheel drive give plenty of drawbar pull to handle heavy loads. Unit pulls scrapers, tows Rooters, pulls trailers, skids generator plants, poles, ties, assists stalled trucks, etc.

SPOTS RAILROAD CARS

Powerful Tournatractor spots cars in emergencies . . . keeps sidings clear for incoming freight. Instant-shift gear selection keeps unit pushing without losing vital momentum. Unit straddles rails with room to spare. Tournatractor can also assist derailed cars back onto track.

anywhere in your division

CLEANS UP YARD

Big blade, 186 hp "push", instant gear change, plus 8 mph reverse, enable tractor to outwork any big crawler. Unit generates own electricity for raising and lowering blade, and operating towed equipment. 3-yd. Angledozer can be mounted in place of 2½-yd. Bulldozer.

PLOWS SNOW

Tournatractor V-type snow plow clears path 12'3" wide. Vertical center divider plate cuts frozen drifts, eliminates plowing snow back on road when widening. Big low-pressure tires, adjustable runner-shoe protect plowed surface. Electric-controlled wing for benching is available.

Do your scattered earthmoving jobs faster and cheaper with one man and a rubber-tired Tournatractor!

No need to get a work train ready. No time-consuming loading and unloading of equipment. No waiting for dispatchers and a clear track. Operator just hops on and goes — over tracks, pavement, bridges, along right-of-way, or highway. Averages a mile every 3 or 4 minutes.

Once on a job, Tournatractor gets right to work. When dozing, it delivers 2½ yds. every few seconds. It also pulls equipment speedily, uproots trees, brush, cuts slopes, etc. Because of its greater speeds, it will outwork the biggest crawler-tractor on almost every assignment, 2 or 3 to 1. It has 4-wheel drive, instant gear change with constant-mesh transmission, torque converter, powerful 4-wheel disc-type air brakes, and fast finger-tip electric control. It's easy to operate, handy to maneuver, safe and dependable, needs little maintenance. It gets work done fast without delays to rail traffic. And it goes from job to job in a hurry!

Let us show you just what 19 mph Tournatractor can mean to you in better maintenance for less money!

Recently, Westinghouse Air Brake Company purchased the earthmoving and related business of R. G. LeTourneau, Inc. Adding Westinghouse Air Brake's many decades of railroad experience to the earthmoving developments of LeTourneau gives you assurance that the improved line of equipment offered by this strong new company is the finest on the market. Be sure to check LeTourneau-Westinghouse before you buy.

Tournapull, Angledozer, Rooter—Trademark Reg. U.S. Pat. Off.
Tournatractor—Trademark T-643-RR

LeTourneau-Westinghouse Company

PEORIA ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

because of a new high in uniformity

YOU GET A COMPLETE WITH ONLY

Graphite molds, machined to extremely close tolerances, are used in producing the Griffin EQS. Note clean appearance. Special silica spray also helps give wheel its fine finish.

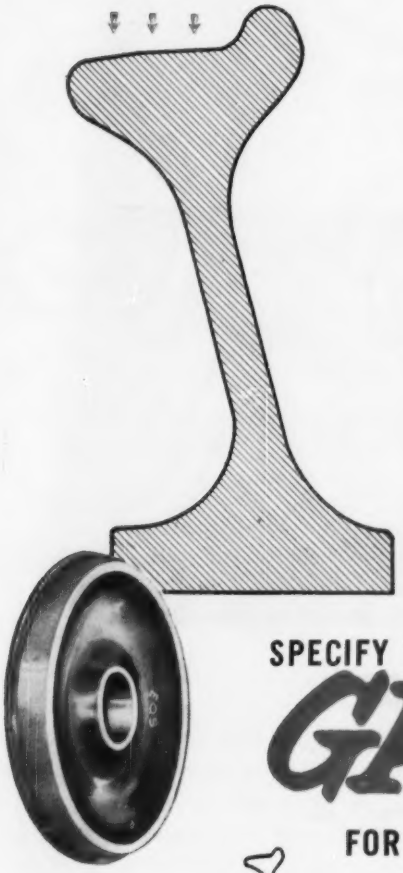
Pressure-pouring and electric quality steel—two significant factors that assure complete filling of the mold with steel of closely controlled analysis.

Normalizing in a temperature-controlled furnace, regulated to prevent decarburization. After removal, wheel is differentially control-cooled to room temperature.

Each Griffin EQS Steel Wheel is shot-blasted and given a 100% Magna-glo inspection. Taping for size completes its manufacture, and molds are immediately prepared for re-use.

CAR WHEEL INVENTORY
2 TAPE SIZES

when you specify the Griffin EQS



- All other dimensions accurate to .020" tolerance.
- Virtually perfect balance—as-cast.
- Excellent rotundity.
- Precision molds—plus shotblasting—result in clean, smooth appearance.
- 100% Magna-glo inspected.

SPECIFY THE

GRIFFIN EQS

E LECTRIC Q UALITY S TEEL

FOR A HIGHER RETURN ON YOUR WHEEL INVESTMENT

Greater Strength | Better Balance | Only 2 Tape Sizes | Precision Tolerances | Longer Wear

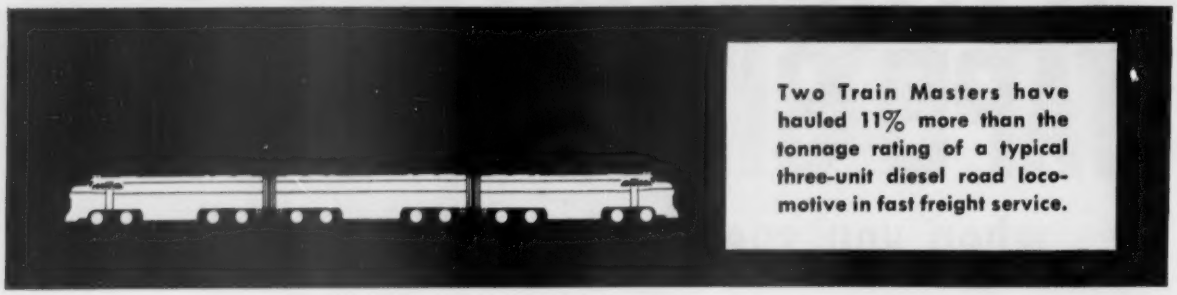
AMCW MEMBER

GRIFFIN WHEEL COMPANY • 410 N. Michigan Avenue, Chicago 11

Eleven modern plants—strategically located for service:

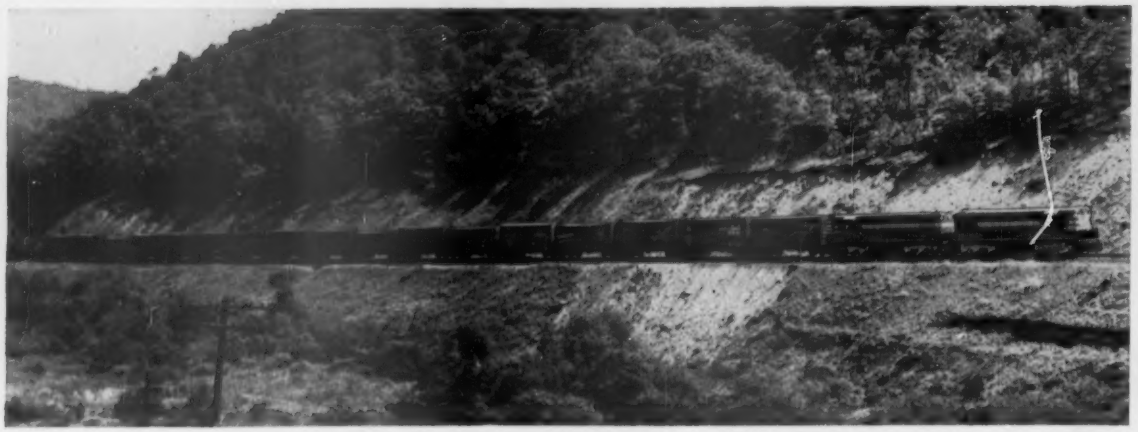
Tacoma • Los Angeles • Salt Lake City • Denver • St. Paul • Kansas City • Council Bluffs
Chicago • Detroit • Cincinnati • Boston

in Fast freight service



Two Train Masters have hauled 11% more than the tonnage rating of a typical three-unit diesel road locomotive in fast freight service.

A sound investment . . . Diesel Motive Power
Your soundest investment . . . Train Masters



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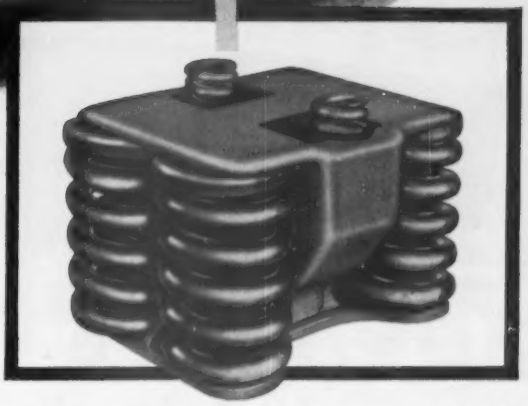

NATIONAL SNUBBER PACKAGE uses either AAR Alternate Standard 2½" deflection springs (coupler still remains below maximum permissible height of 34½") or 1936 AAR Standard 1⅝" deflection springs. The Snubber Package can be supplied with or without springs.

Now you can equip your old freight cars with National Snubber Packages that operate on the same friction-control principle (with the same extra-large friction surfaces to reduce wear) as the National C-1 truck. The riding qualities of this outstanding car truck can now be obtained in the National Snubber Package.

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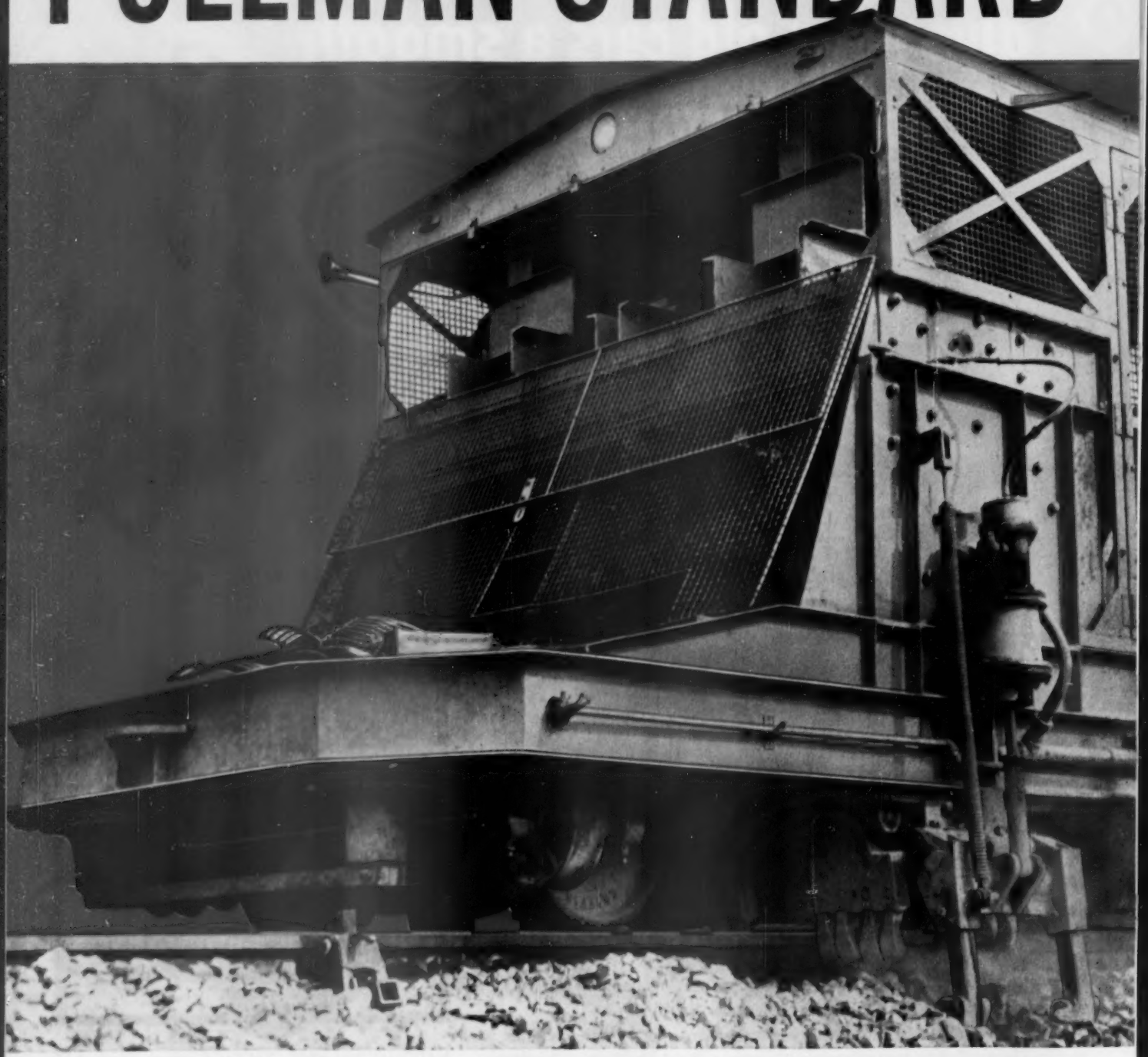

Power Ballaster—With a production rate of 500 to 700 feet an hour, a Pullman-Standard Power Ballaster run by a single operator, can be efficiently manned by a crew of 10 to 15 men. Case history studies made on 16 railroads prove that this unit will give more feet of finished tamped track per hour, with less labor and maintenance, than any other production tamper.

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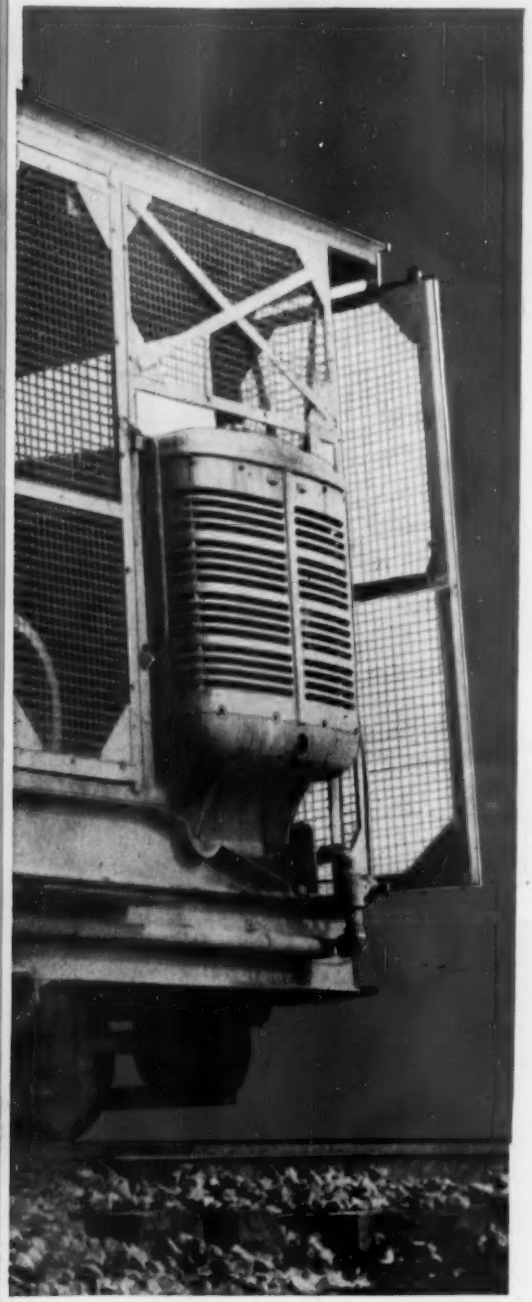
POWER BALLASTER



- tamps 500 to 700 feet per hour
- efficiently manned by 10 to 15-man crew
- low maintenance requirements
- has triple-action compaction
- proved in service on 30 railroads

If you are interested in better, faster, lower cost mechanized track maintenance, get *all* of the facts about Pullman-Standard Track Equipment. Then compare, feature for feature with any other. Write or phone the Pullman-Standard office located nearest to you.

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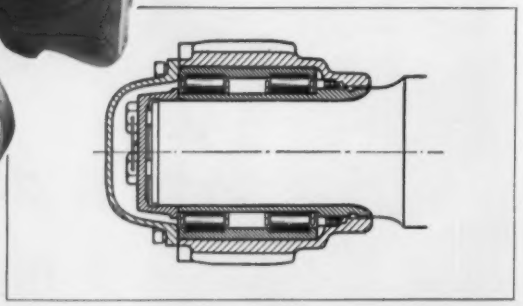

The straight roller bearings for this freight-car journal box are made by the Bower Roller Bearing Company of Detroit. The inner race fits standard AAR freight-car roller-bearing axles. Two rows of straight rolls are positioned by sturdy retainers. The outer race is contained in a separate, ruggedly-built journal box housing. The bearing permits free lateral movement of the axle up to ½-inch.

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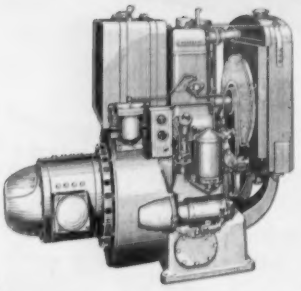
Santa Fe

Santa Fe Installs NORDBERG DIESEL in Kansas Centennial Car

Photo courtesy A.T.&S.F. Railroad.

6 KW GENERATING UNIT carries electric load for rail-borne historical exhibit



A rail-borne exhibit covering the history of the Territory of Kansas is now being shown throughout that State as part of the Kansas Centennial Territorial observance. The "rolling" exhibit is a rebuilt tourist sleeping car, re-designed by the Santa Fe Railway to display century-old documents and relics of the Kansas territorial period, 1854 to 1861.

Rebuilt as a self-contained unit, the exhibit car depends on a single-cylinder, 6 KW Nordberg Diesel Generating Unit to meet the electrical load requirements.

While this represents a "special" application of Nordberg Diesel power, it serves as one more example of the way these compact, dependable units serve the nation's railroads—including power for mechanical reefers, and for main or stand-by power needs.

● *Nordberg "4FS" Diesels are available as power units in sizes from 10 to 45 HP; as generator sets from 6 to 30 KW; as pumping units in capacities up to 3,000 GPM; and are built for mechanical refrigeration systems having capacities of either 10 or 15 tons. Write for full details.*

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Letters from Our Readers

Box Car Pool Would Solve Per Diem Squabble

BOSTON, MASS.

TO THE EDITOR:

The present argument about per diem rates is actually an argument about the fundamentals of our present freight car interchange—as embodied in Car Service and Per Diem rules. Originating roads apparently believe terminating and overhead roads ought to bear a greater share of the burden of car ownership than they do under the rules. Therefore, they vote for higher and higher per diem rates.

While *overhead* roads probably are not too much concerned in the fight, because the incidence of per diem charges to their haul is relatively small, *terminating* roads are forced by the inevitably high incidence of per diem on their expenses, to defend themselves with vigor. They quite properly point out that, whatever *ought* to be the case, it is clear that the rules place the burden of car ownership *squarely* on the predominately originating roads.

The fact that the rules nowhere say so literally does not change the fact that they are necessarily based on this assumption. In fact, there is reason to believe that the originators of the rules thought the principle so clearly established as to need no statement of doctrine.

Obviously, the whole purpose of the rules is to get cars home. "Home" is "on the line of the owning road." Obviously, too, the place where cars are needed is on originating roads. If, then, moving cars home (i.e., to their owners) did not move them to the originating roads, the rules would be meaningless.

It is also of interest to note that the very first rule concerns itself with elimination of empty cross-haul which inevitably results from heavy ownership of cars by primarily terminating lines.

Home Roads' Interest—The insistence of originating roads upon excessively high per diem is actually, therefore, an attack on the Car Service rules. That does not alter the fact, of course, that there exists substantial cause for their dissatisfaction with the present dispensation.

The failure of cars to return home represents a serious matter of daily concern to originating roads. That failure must be met by arbitary movement of cars of miscellaneous ownership from wherever they may be found to an originating road whose cars have not returned.

This movement, brought about by the Car Service Division or simply by the neighborly action of transportation officers, represents, in effect, a car pool. It is simple, effective and

necessary, but it has one serious fault. If the cars so moved are not of sufficiently high grade to meet requirements of the lading for which they are needed, the originating road is reluctant to up-grade them and may instead reject them, thus increasing instead of decreasing empty car-miles and general car inefficiency.

It seems to me that the answer to this problem—as well as to the eternal squabble between originating and terminating lines about per diem and car ownership—is to recognize the car pool which, in effect, already exists. Let all box cars, at least, be stencilled AAR, moved from terminating areas to originating areas by order of the CSD, and, most important of all, up-graded *in the originating areas* by shops operated by the car pool.

By this means it would be possible to spread the costs of the pool by any yardstick desired—possibly on the basis of loaded car-miles, with a small per diem charge added to be sure the incentive for prompt movement was not withdrawn.

Opponents of this proposal say they do not want to lose control of their cars. The fact is that, today, they have no such control. Cars loaded off-line may or may not return. In most cases it is necessary to undertake arbitrary redistribution—like that of a car pool—to readjust car locations satisfactorily.

A car pool would:

(1) Spread the burden of ownership equitably between originating, terminating and overhead roads.

(2) Reduce empty mileage now caused by empty cross-haul resulting from inability to adjust individual ownerships exactly to varying demand.

(3) Greatly accelerate up-grading of cars in originating areas where high-grade cars are needed.

(4) Reduce car shortages.

HERBERT E. BIXLER
Assistant to President,
Boston & Maine

[Mr. Bixler raises fundamental questions about conventional concepts of car ownership and interchange. They are his views, and not those of his road—though the latter is a leading contender in the fight to reduce per diem rates to levels which it believes represent the actual cost of owning a freight car.

Readers are invited to sound off on Mr. Bixler's argument in letters intended for publication in this paper. Address the Executive Editor, 30 Church st., New York 7, N. Y.]

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Wants Other Side Of Union Shop Story

FAR ROCKAWAY, N.Y.

TO THE EDITOR:

As assistant general chairman of the Order of Railroad Telegraphers, and as a subscriber to *Railway Age*, I am taking this opportunity to comment on the article appearing in the May 10 issue, "The Santa Fe's Attack on the 'Union Shop.'"

I will only take issue at this time with the paragraph about the witness, a young man who had been a member of an appropriate labor organization and who was discharged due to delinquency in his dues, occasioned by unfortunate circumstances when his wife and child both became ill.

Under similar circumstances in our organization, here is what we would do for the member: First, we would waive his dues until such time as he was financially able to pay; and second, we have a welfare clause in our constitution which would entitle this unfortunate member to as much as $400, providing he was a member in good standing for five years.

Now, I am sure the same consideration would be given to that unfortunate employee President Fred Gurley feels so bad about, if this employee was a bona fide member. It would be interesting to publish in your Forum the other side of the story, that is, the union he belonged to. I think that would be the fair thing to do.

A. SWILLING,
Assistant general chairman, O.R.T.

The Differential Air Dump Car has a way with operating expenses — cuts 'em down!

There's another pair of massive muscles on the other side of the car, too, means two-way dumping and greater flexibility.

They're built to take rough treatment — whether it's the slam-banging of the clam or the sudden dumping of tons of hot slag. These cars can take it and can come back faster for more.

Higher ratio of payload to dead weight! Fewer trips to the shop and shorter stays when they do go! Add all these up and it spells lower operating costs — another way to say "Boosted Earnings". Write for the full story on these cars.

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THE CONTROL DEVICE IS CLEARLY VISIBLE FROM THE SIDE OF THE TRUCK:—

- The Condition of the **Wedge Spring**

and

- The Position of the **Wedge**

can be observed without removing any parts.

This feature permits rapid and frequent inspections to determine definitely any maintenance which may be required for continued proper functioning of the control device.

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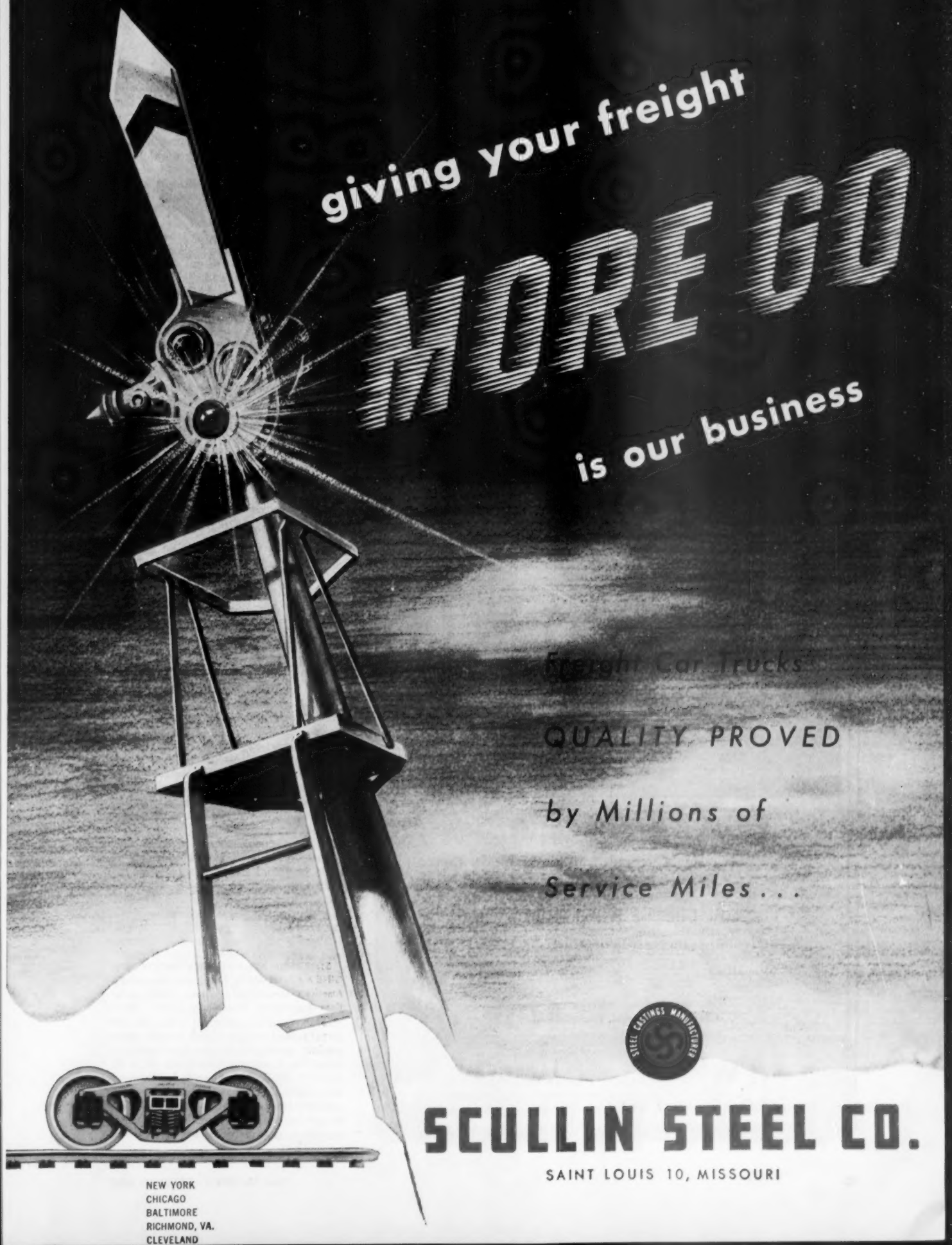
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Current Publications

PERIODICAL ARTICLE

DIESEL LOCOMOTIVES: TOO TOUGH FOR THE MAKERS' GOOD. Business Week, May 29, 1954, pp. 52-56. McGraw-Hill Publishing Company, 330 W. 42nd st., New York 36. Limited supply of tear-sheets available free.

Engineers in diesel locomotive plants are specializing in rebuilding and modernizing old models in order to keep busy as the new-model market fills up.

BOOKS

TRANSPORT AND THE STATE OF TRADE IN BRITAIN, by Thor Hultgren, assisted by William I. Greenwald. Occasional Paper 40. 114 pages, charts. National Bureau of Economic Research, 1819 Broadway, New York 23. $1.50.

Mr. Hultgren applies to this study of British transport, and particularly to an intensive analysis of operations of British railways from 1919 to 1952, techniques he developed for the study of American transport, on which he reported in a monograph, "American Transportation in Prosperity and Depression," published by the National Bureau in 1948.

In his study of British transport he was able to test his conclusions about the reaction of the American transportation system to alternating expansions and contractions in general business activity by the experience of the systems of another country. In many respects, he finds, American and British railroads are similarly affected by business disturbances. Cycles in railway traffic corresponded in a general way with cycles in business at large.

While he found many similarities between American and British transport, Mr. Hultgren found that one point of difference was in the productivity of their railroad systems. The amount of labor required per unit of traffic volume is far smaller in the United States than in Britain, he reports, and the decline in this requirement has been far greater in the U.S. Also, in technological development, British railways have not kept pace with the American roads.

•

PRINTERS' INK DIRECTORY OF HOUSE ORGANS. Fourth edition, 148 pages. Printers' Ink Publication Company, 205 E. 42nd st., New York 17. $5.

From 5,100 titles in the first edition, this valuable reference tool has grown to 6,329 titles in this, its fourth edition. An editorial section discusses how house publications help employees and management solve mutual problems, and lists 50 ways house publications can promote sale of goods and services; 25 ways they can stimulate output; 10 main objectives of external house publications; the five main groups of house publication names; and 12 ways to get publicity for a house publication. As in the past, the publications are listed three ways: By title, as a service to those who wish to avoid unwitting appropriation of titles already in use; by sponsors, making it convenient to identify house publications issued by particular companies; and geographically by sponsors, for the convenience of those who wish to communicate with sponsors in their communities as a means of exchanging ideas or forming organizations. This list contains street addresses.

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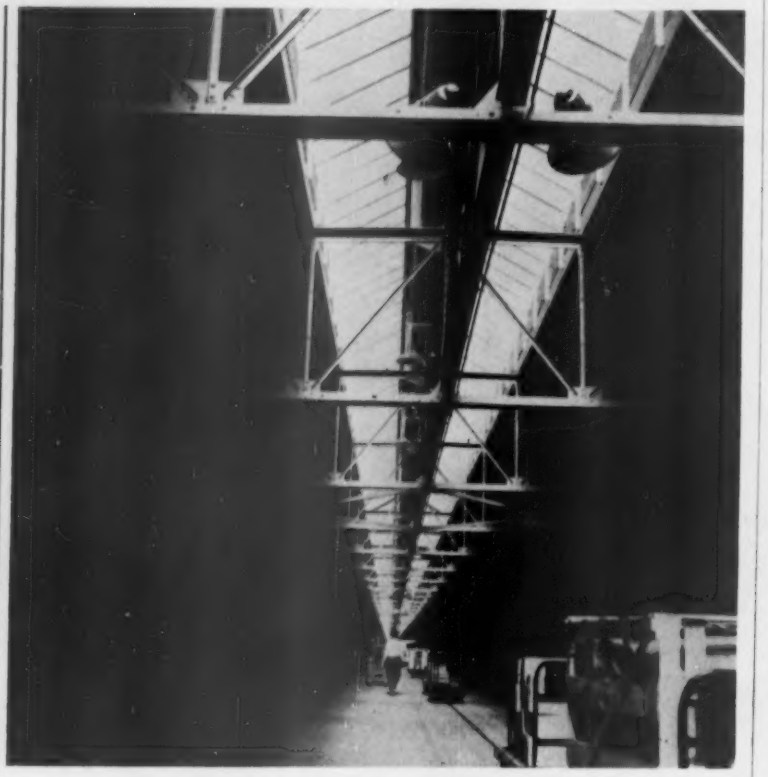
SYMPOSIUM ON DIESEL LOCOMOTIVE ENGINE MAINTENANCE. 146 pages, illustrations. American Locomotive Company, Public Relations department, Schenectady 5, N. Y. Free.

This booklet presents most of the papers read at the third annual symposium sponsored by the American Locomotive Company and held May 11 and 12, 1953, in Schenectady. Both of the preceding annual symposia concentrated on application of the spectrograph in conjunction with diesel locomotive engine maintenance. It was felt,



complete loudspeaker paging and two-way communicating systems for freight stations, loading platforms, baggage and mail handling facilities, engine houses and shops increase the efficiency of every operation.

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in planning this meeting, that the general subject of spectroscopy had been quite completely discussed at previous meetings, and that only a single session should be devoted to covering the latest developments in this field. The remainder of the time was devoted to other subjects dealing with diesel locomotive operation and maintenance. Papers were presented on railroad lubricating oils, diesel engine crankcase oils, the electron microscope, air filtration, and diesel engine cooling water treatment.

•

HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1954. 1,616 pages, charts, drawings. American Society of Heating & Ventilating Engineers, 62 Worth St., New York 13. $10.

Chapters brought up to date by major changes include heating load, fuels and combustion, chimneys and draft calculations, panel heating, pipe, fittings, weldings, district heating, air cleaning, automatic controls, electric heating, and owning and operating costs. Recent society research has been used as a basis for extending data on the effect of shading of glass and for improving the chapter on air distribution. The 52 chapters are grouped in seven sections: Fundamentals; human reactions; heating and cooling loads; combustion and consumption of fuels; systems and equipment; special systems, and instruments and codes. Transportation air conditioning is dealt with in a chapter in the special systems section. A 24 x 32-in. ASHVE psychrometric chart is printed in two colors. There is an edge index.

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ABC'S OF AIR BRAKES, by C. M. Drennan. 243 pages. "Chalk Talks" illustrations. Simmons-Boardman Publishing Corporation, 30 Church st., New York 7. $4.75.

This is the first of three volumes based on the author's "Chalk Talks," which have been a feature in education of enginemen, trainmen and maintenance employees in the functioning of air-brake equipment for more than 30 years. The air brake operates on certain fundamental principles. Mr. Drennan has mastered the art of leading the student, step by step, through presentation of these principles and then through their application, also a step at a time, so he never becomes confused by having to master more than a single concept at once.

The present volume deals with fundamentals of air-brake design, construction and operation as applied to railway cars and locomotives. Section I is on General Railway Train Brake Control, with subsections on friction and braking ratio, freight-train brake control, and passenger-train brake control. Section II goes into such parts as pistons, valves, electric controls and

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other components of equipment and explains their various functions and operations. Section III, an air-brake dictionary, defines words, terms and phrases used in connection with air brakes by railway men, many of which have meanings different from those found in a regular dictionary. This dictionary section aims at more consistency in definitions and applications of terminology; many air-brake terms are used with different meanings in different sections of the country. The first two sections contain 70 of the "Chalk Talks" diagrams, and a "Chalk Talks" quiz follows each unit of study.

•

ALLOY STEELS PAY OFF. 208 pages, tables, charts, drawings. Cl'max Molybdenum Company, 500 Fifth ave., New York 36. Write on business letterhead for free copy.

This book attempts to show some of the changes in economic factors that have made alloy steels as a class increasingly more price-worthy and to present some case histories where adoption of alloy steel has saved money for the producer of finished parts, the user, or both. The book does not try to show what specific grade of alloy steel should be used for a given part but indicates the general benefits—which may include greater pay load, lower operating costs, longer life, greater safety and less maintenance—that may result from replacement of carbon steel with a properly chosen alloy steel. Case history No. 49 covers railroad passenger and freight cars.

PAMPHLETS

HOW TO LOAD AND UNLOAD CARS WITH EVANS DF LOADER EQUIPMENT. 24 pages, illustrations. Evans Products Company, Plymouth, Mich.

Prepared primarily for new users of box cars specially equipped with Evans DF loaders, this booklet explains how to make best use of the three component parts of the equipment—doorway members, bulkheads, and cross members. Included are instructions and illustrations on how to plan a load, how to double-deck lading, how to brace heavy load sections, how to load doorway areas, how to stow extra equipment, unloading procedures, and information on how to build typical loads.

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RAILROADING. 90 pages, illustrations. Boy Scouts of America, 2 Park ave., New York 16. 25¢.

A merit badge series pamphlet covering railroad history, freight and passenger operations, employees, travel, safety, signals, and model railroading.

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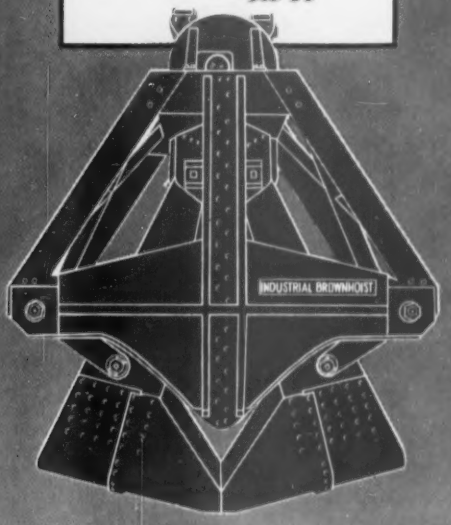
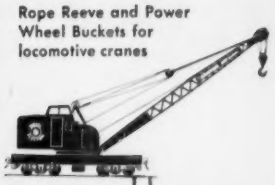
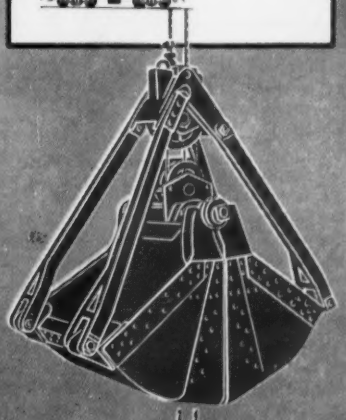
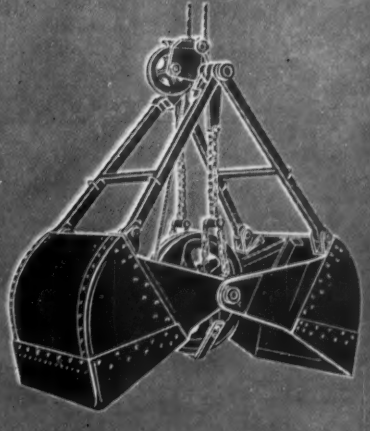


Rope Reeve and Power Wheel Buckets for locomotive cranes







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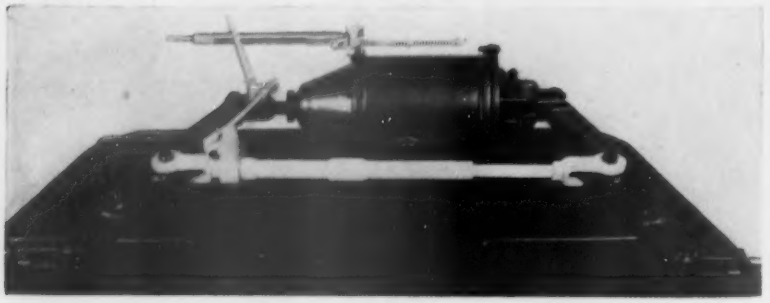


Automatic Slack Adjuster

Franklin Balmar Corporation develops two types to meet demands for automatic control of freight-car brake cylinder piston travel

The Franklin automatic brake slack adjuster was recently developed by the Franklin Balmar Corporation, Baltimore 11, to meet demands for automatic control of freight-car brake cylinder piston travel during brake shoe life. The product has tentative AAR approval and permission for application to cars either on line or in interchange service. The manufacturer states that the brake slack adjuster results in better brake performance and elimination of manual adjustments during brake shoe life.

Two types are offered—Type G for the general type of brake cylinder and lever adjustment usually found on cars other than hoppers and Type H for hopper cars. While the two types differ, most of the parts are interchangeable.

The principle of operation is that of a ratchet and pawl working on an adjusting screw which effects a change in length of the slack adjuster. Type G is installed in the cylinder lever tie rod, while Type H is installed in the pull rod at the bottom connection of the cylinder lever.

Each time a brake application is made, the housing carrying the pawl is rotated through an angular distance proportionate to the push rod travel by means of levers connecting to the brake-cylinder push rod. The pawl housing rotates on the application stroke without rotating the ratchet. If the piston travel is 8 in. or less, the pawl will not travel far enough to engage a tooth on the ratchet. Therefore, on the release stroke no take-up will be made. If the push rod travel is more than 8 in., the angular pawl travel is increased so that a ratchet tooth is engaged. In this case a takeup adjustment is made on the release stroke, shortening the slack adjuster by an amount corresponding to one-seventh turn of the adjusting screw housing. With the average cylinder levers, this means approximately $\frac{1}{8}$ in. of piston travel per adjustment.

For changing brake shoes a simple reset mechanism is provided. It is not necessary for a maintainer to go between the rails and no tools are needed. Neither is it required to disconnect brake rigging to replace worn brake shoes, as the reset mechanism provides a quick means for obtaining the desired slack in the rigging to allow for brake-shoe renewal. This reset mechanism can also be used for bringing piston travel close to the predetermined figure before returning car to service.

The adjuster with screw housing, head, pawl, pawl housing, and cylinder lever jaw is furnished assembled. Levers, reset lever, bearing pin, bracket, etc., are shipped disconnected from the adjuster. The device is protected against entrance of dirt and foreign matter and is said to give years of service without requiring renewal of parts or repairs. It does not require lubrication between repair periods. Prototype models have been in service three years without attention or lubrication •

Diesel Fuel Additive

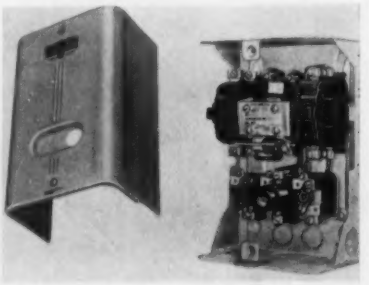
Railroads are now testing Nalco SR-158D, a new diesel fuel oil treatment developed by the National Aluminate Corporation, 6216 West 66th Place, Chicago 38, to effect economies both in refinement and use of diesel fuel oil.

The stabilizing and dispersing action of SR-158D tends to prevent sludge formation that results in clogged lines, screens, filters and injectors in diesel locomotive fuel systems. Its use is said to enable railroads to employ effectively heavier oils and fuel oil blends, including those having a higher ratio of cracked to straight run fuels.

The utilization of a greater percentage of catalytically cracked oil leaves refiners more straight-run stock for production of lighter fractions. At the same time it makes available to railroads a lower cost fuel which, according to the manufacturer, after treatment with small amounts of SR-158D, may be safely and efficiently used in diesel locomotives •

Combination Pipe and Nut Wrench

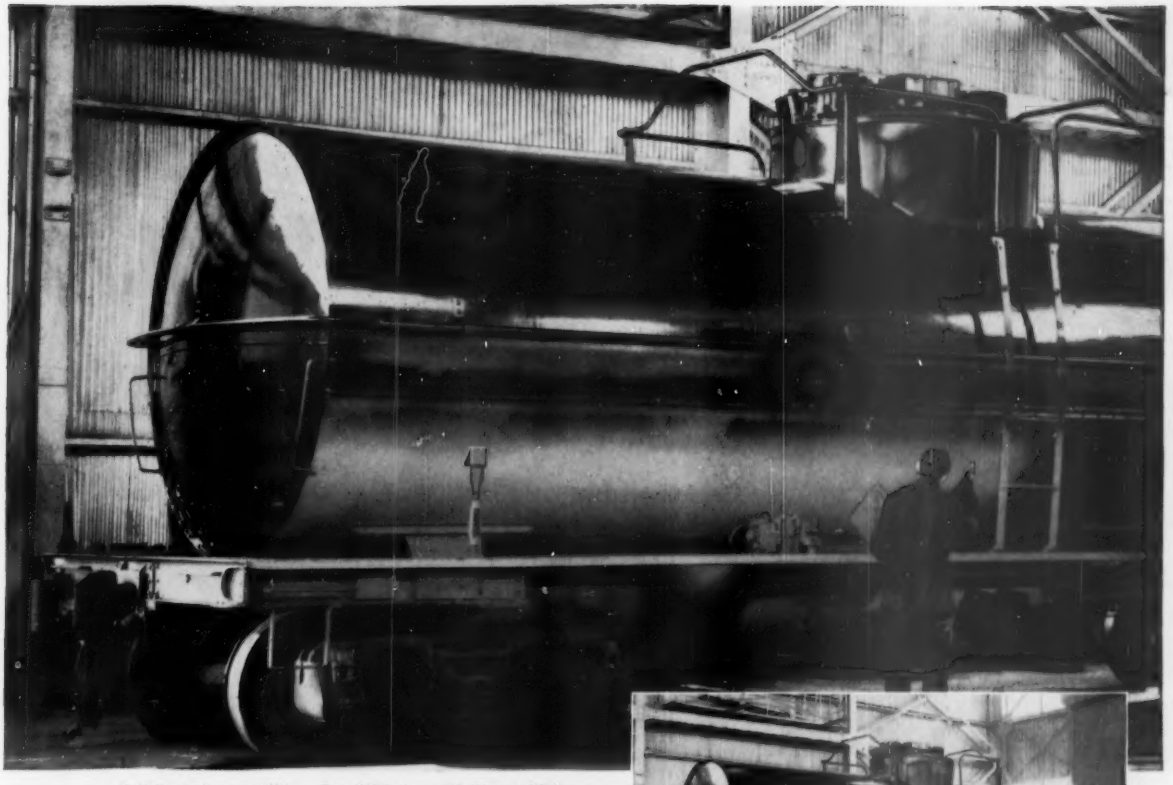
A wrench which automatically grips and releases on pipes and nuts has been announced by the Trig-O-Matic Tool Corporation, Chicago. A self-adjusting trigger mechanism permits one-hand operation and eliminates adjustment with knurls. The tool is made in both alloy steel and alloy aluminum and is available in a non-sparking model for use where inflammable materials are prevalent. A variety of sizes equipped with replaceable insert jaws is offered •



Three-Coil Motor Protection

Three-coil rather than two-coil motor protection is recommended and now

(Continued on page 48)



Finishing tank cars at Milton, Pa., SHPX shops with Sherwin-Williams Hot Spray Enamel. Hot spray speeds finishing operations . . . produces more uniform, longer lasting good appearance.

Ready for action . . . faster . . . longer

at SHPX

thanks to modern HOT SPRAY painting

Cars in the paint shop earn no revenue. And the cost of refinishing thousands a year—as Shippers Car Line does—is a substantial figure. Yet SHPX keeps its equipment looking well and well protected, while refinishing costs and out-of-service time per car decreases. They do it with hot spray painting.

Pioneered for railroads by Sherwin-Williams, the hot spray method has been tested and proved on the railroads of the nation. By applying the equivalent of two coats in one spraying, HOT SPRAY eliminates labor and drying time required for the usual second coat. HOT SPRAY uses less paint materials than cold spraying, producing a finish with higher gloss, longer lasting color, and greater durability. HOT SPRAY is not affected by weather conditions that would upset schedules or quality of regular finishing.

For full information on this cost-cutting painting method, contact The Sherwin-Williams Co., Transportation Division, Cleveland 1, O.

SHERWIN-WILLIAMS

RAILWAY FINISHES

WESTERN UNION

W. P. MARSHALL, PRESIDENT

FX-1201

CLASS OF SERVICE

This is a full-rate Telegram or Cable-gram unless its de-ferred character is in-dicated by a suitable symbol above or pre-ceding the address.

SYMBOLS

DL = Day Letter

NL = Night Letter

LT = Int'l Letter Telegram

VLT = Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

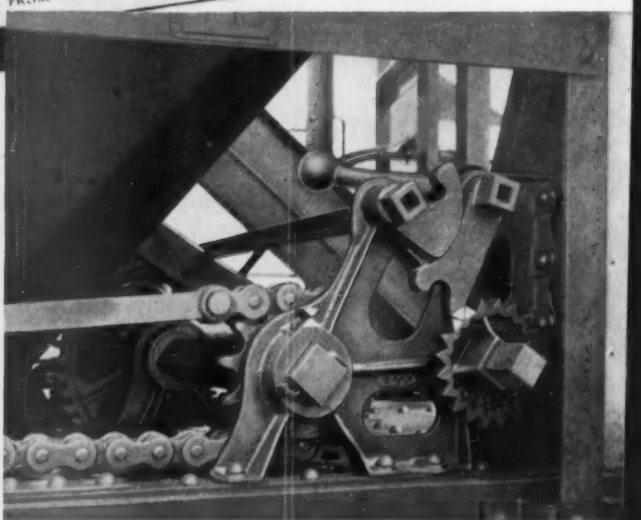
MR RAILROAD EXECUTIVE

OVER NINETY PER CENT OF ALL ORE CARS BUILT IN THE LAST TWENTY FIVE YEARS HAVE BEEN ENTERPRISE EQUIPPED ORE CARS THE RUGGED ENTERPRISE MECHANISM WILL LAST THE LIFE OF THE CAR FAST EASY AND SAFE TO OPERATE IDEAL FOR POWER TRIPPING

ENTERPRISE RAILWAY EQUIPMENT COMPANY

WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

The Dumping Mechanism of the Enterprise Ore Car



Enterprise Door Latch and Operating Mechanism (Operates from either side of car)

4499 S

Door Operating Devices Exclusively Since 1905

ENTERPRISE RAILWAY EQUIPMENT COMPANY

59 East Van Buren Street • Chicago 5, Illinois

the Original snubber spring

Holland Volute Snubber Springs are NOT miniature Draft Gears. They are effective Load-Carrying SPRINGS as well as highly efficient FRICTION SNUBBING DEVICES for Freight Cars.

Either 1⅝" or 2½" Spring Travel

They are easily applied by simply removing one standard Bolster Spring from each spring nest, and replacing it with a Holland Volute Snubber Spring.

HOLLAND A-7-A VOLUTE BOLSTER SPRING

Write for Bulletin #15 describing in detail the Unit Snubber.

HOLLAND COMPANY

332 S. MICHIGAN AVE. CHICAGO 4, ILLINOIS

388 R

More New Products

(Continued from page 44)

provided by Cutler-Hammer, Inc., Milwaukee, Wis. The reason for this development is that on wye-delta systems, for example, an open phase in the primary of the transformer results in one high and two low currents. If only two lines are protected, the chances are one in three that the high current line will be the unprotected one.

The Cutler-Hammer starter illustrated offers three-coil overload protection in the same enclosure at little extra cost. An additional feature of Cutler-Hammer three-coil starters is an adjustable heater coil. This provides four different ratings from a single coil by changing its position •

Heat in Small Packages

General Electric Company Lamp Division, Nela Park, Cleveland, Ohio, has announced two infrared lamps of radically new design. These lamps have bulbs of tubular quartz, only 3/8 in. in outside diameter. They are reported to be capable of delivering over three times the energy concentration provided by the reflector type 375-watt R40 infrared lamp.

Quartz will withstand high temperature and thermal shock. Even when heated to a cherry red, the slender tubular quartz bulb used in the new lamps may be doused in water without cracking. Because of this characteristic, the coiled tungsten filament has been designed to reach the hitherto unattainable value of 100 watts per inch of lighted length of lamp. As a result, the lamps are appropriate for applications requiring energy concentrations above anything available in the past, e.g. paint drying, space heating, food thawing, and cooking. The small bulb diameter permits use in compact trough reflectors which concentrate the radiation where most needed •

Redesigned Pul-Pac and Pusher Units

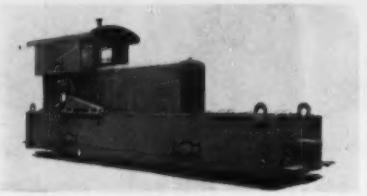
An improved design for its Pul-Pac and Pusher units has been announced by the Clark Equipment Company, Battle Creek, Mich.

The Pul-Pac is a combination push-pull attachment that permits use of a thin carrying sheet instead of the conventional type of wooden pallet. The Pusher device eliminates manual unloading of cartons, bags, drums or other material stored on pallets. Both devices are available for factory or field installation on Clark's gas and electric Clippers and Carloader model fork trucks •

Automatic Fire Detection System

The Notifier Manufacturing Company, 239 S. 11th st., Lincoln 8, Neb., has developed a remote control and fire station receiving panel which is said to be the first development of this nature ever to be accepted by Underwriters' Laboratories.

When a fire starts in any building protected by the system, the Notifier combination rate-of-rise and fixed temperature thermostat is said to give almost instantaneous notification. The instant the thermostat is activated a message goes to the auxiliary control panel. The correct relay indicates the location of the incipient fire, sounds a local alarm, and transmits an electrical message to a remote control and fire station panel. An alarm bell rings and indicating lights flash at the fire station the instant the message is relayed from the auxiliary panel. In many instances, therefore, the fire department can have the fire under control before it would have been possible even to know of its existence if relying on human detection and warning •



Diesel Ore-Car Pusher. The diesel-electric locomotive is now giving competition to the electric locomotives generally used for moving cars on ship loading docks. The unit pictured is a 65-ton diesel-electric pusher locomotive built by the Atlas Car & Manufacturing Co., Cleveland •

GET DIESELS OFF TO A GOOD START

. . . with dependable Exide-Ironclad batteries!

BIG DIESELS, like this Atlantic Coast Line giant, are equipped with Exide-Ironclad batteries to insure quick breakaway and fast acceleration of engine to firing speed. The battery is built to give a surge of starting power at many times the nominal rated capacity. Positive operation of control equipment is guaranteed. With Exide-Ironclads there is the assurance of uninterrupted "on line" service, high availability of equipment. In addition, lower costs for operation, maintenance and depreciation make Exide-Ironclad diesel batteries your best power buy—AT ANY PRICE!

THE POSITIVE PLATES are the heart of any battery. Only Exide uses a slotted tube construction. By use of tubes, more active material is exposed to the electrolyte, providing *greater power.* Also, more active material is retained, giving *longer working life.*

DEPENDABLE POWER, ample reserve power for any diesel need, comes from improved Exide-Ironclads. Prompt delivery. For full details, call your Exide sales engineer—write for Form 4843 (Installation and Maintenance of Diesel Starting Batteries).

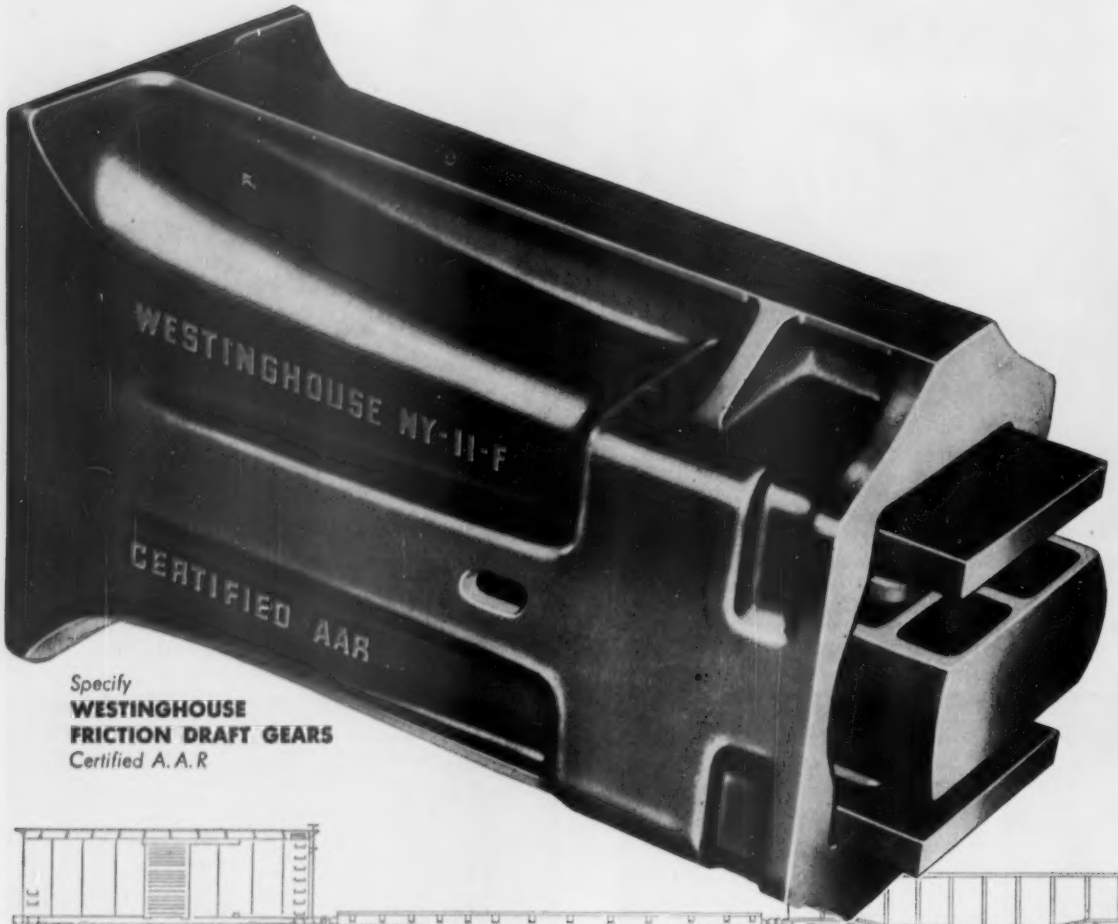
Your best power buy
. . . AT ANY PRICE!

Exide®
IRONCLAD® BATTERIES

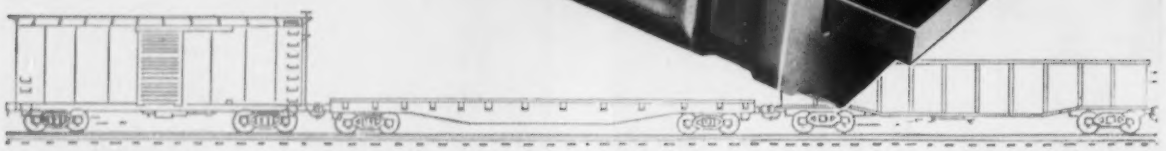
Exide **INDUSTRIAL DIVISION,** The Electric Storage Battery Company, Philadelphia 2, Pa. • *Exide Batteries of Canada, Limited, Toronto*

protection

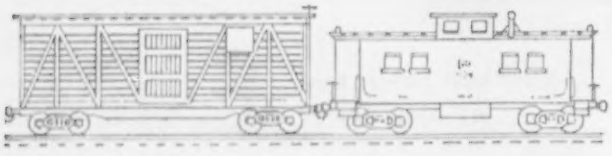
for cars and lading



Specify
WESTINGHOUSE
FRICTION DRAFT GEARS
Certified A.A.R



ABSORPTION
ENDURANCE
STURDINESS
CAPACITY



CARDWELL FRICTION
BOLSTER SPRINGS
Short or Long Travel

Cardwell Westinghouse Co., Chicago
Canadian Cardwell Co., Ltd., Montreal

288R

Don't Be "IN THE DARK" about Track Insulation

• A tunnel-mouth view of the Southern's well-maintained track near Chattanooga, Tenn.

Use RAJO Renewal Fibre

Here's Why

- The best vulcanized fibre obtainable.
- Perfect fit—identical to original parts.
- Rigid inspection.
- Dependable field service by engineer specialists.

YOUR insulated joints call for nothing short of the best in fibre renewals. RAJO Renewal Fibre out-performs and out-lasts others not only because the best obtainable fibre is employed but it is made to the master designs used for the original fibre parts. This precise fit is vital in the efficient and durable performance of the whole joint assembly. It is only good business on our part and a continuing responsibility to see that these renewal parts are equivalent in every respect to the original parts.

THE RAIL JOINT COMPANY, INC.
50 Church St. New York 7, N. Y.

harnesses diesels with OKONITE-OKOPRENE type DEL wiring

Mounting Okonite-Okoprene diesel wire in this wire harness subassembly saves labor for the Atlantic Coast Line. It eliminates the need for pulling individual wires through the diesel engine conduit system.

The Atlantic Coast Line Railroad, in keeping with its modernization program, selected a service-proved cable—Okonite-Okoprene type DEL—to harness its diesel locomotives. Service experience has proved that heat, moisture, mechanical abuse and oil—the main causes of damage to diesel circuits—have little or no effect on this cable's composite wall insulation and sheath.

Heat-resistant Okonite insulation, compounded with natural Up-River Fine Para rubber, provides time-tested mechanical toughness and electrical strength. The Okoprene sheath, a neoprene compound made to Okonite's own formula, is highly resistant to diesel lubricants and mechanical wear. Firmly bonded together by vulcanization in a metal mold, Okonite-Okoprene is the longest-lived diesel electric locomotive wire.

In addition to diesel wiring, Okonite-Okoprene is used on over 100 other Class 1 railroads for yard wiring, signal circuits and car wire. For complete information on Okonite railroad wires and cables, write for Bulletin RA-1078 to The Okonite Company, Passaic, New Jersey.

OKONITE insulated cables

2398

Traffic Departments In the Ascendant

Look at almost any date in railway history—and it is usually possible to distinguish some one phase of railroad development, or one railroad department, as largely dominant at that time. Thus, in the earliest days, it was company promotion—getting charters and raising investment funds—which got most of the attention. The objective at that time was to get *a railroad*—nobody worried much about how good a railroad it would be, because obviously any railroad at all was better than none. There have been periods when the display of skill in inter-railroad rivalry attracted more attention than anything else that was going on in the industry. At still other times, the crossing of big rivers and mountain barriers was the objective on which many of the railroads centered their attention. At other times the big target was motive power improvement; or constructive finance—mergers and reorganizations. The operating department has on several occasions occupied the center of the stage—at no time more completely so than during World War II. And so on.

Would anyone doubt that, now, the "big time" has come for the traffic department? There is far more tonnage available today than ever before in history, in sufficient quantity to fill to capacity practically all railroad facilities—which measures the traffic department's unparalleled opportunity of accomplishment. But, also, a far larger ratio of available traffic than ever before is now moving by agencies of transportation other than railroads—which diversion measures the size of the task which confronts the traffic departments.

It wasn't like this in "the old days," up to the mid-twenties. Until then the dominant aspect of "the railroad problem" was how to keep facilities abreast of public demand. Railroad traffic departments have always done much to develop new sources of traffic and have shown great skill in competing with each other—but results were seldom spectacular, because the tonnage available to work for came slowly and only as national production increased.

A lot of railroad men have been saying that what the railroads need most is "a new diesel"—that is, some new machine or method which will reduce operating costs in some such degree as the diesel has done. That observation is doubtless true—but isn't there *a still greater need* for an approach to service and rates which will put on the rails every pound of freight for which the railroads have the "inherent advantage"? A traffic vice-president of one of the bigger railroads remarked recently, in private, that every railroad (or the railroads jointly) should have a group of ingenious minds examining every possible phase of constructive pricing. He emphasized his belief that these inquirers "oughtn't to know too much about existing railroad rates—because, if they do, they'll think of too many things we can't do. We don't need to know what we can't do. What we need to know is what, if done, would get us more business at a profit. When we know that, it'll be up to us to find ways of doing what ought to be done."

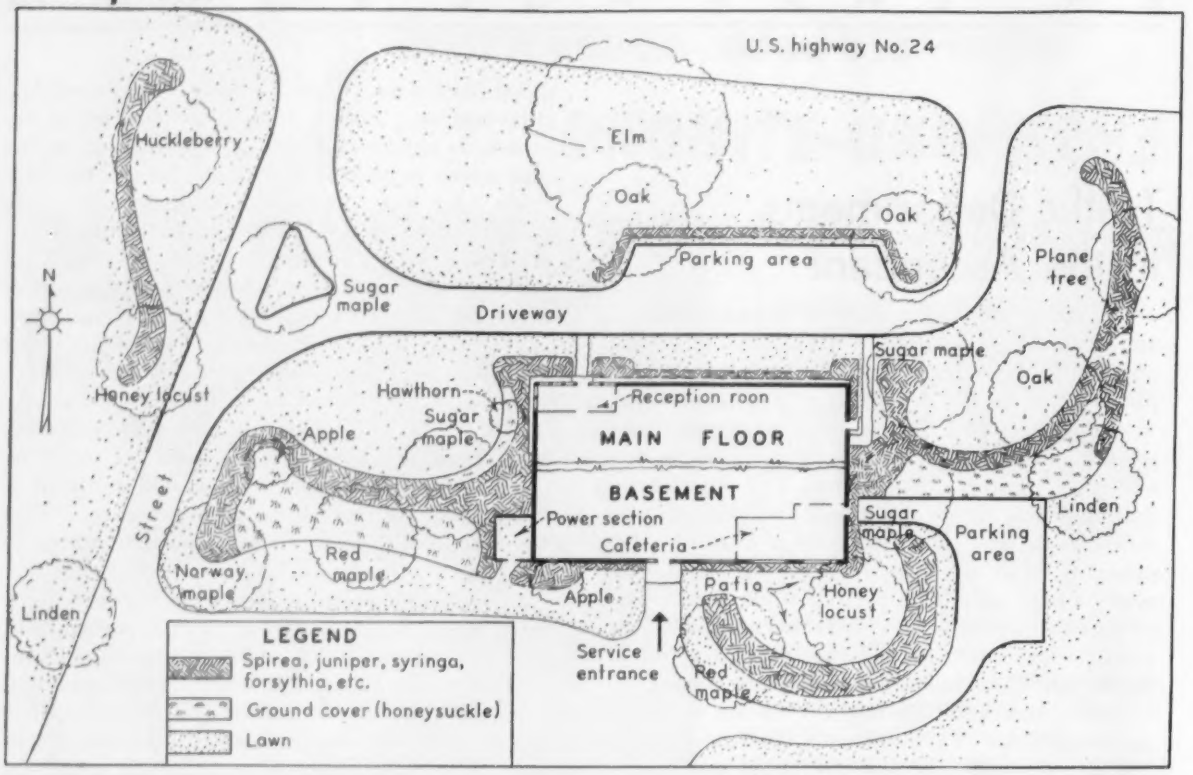
Arthur Grotz, president of the Western Maryland, made a speech recently at Hagerstown, Md., with the cheerful title of "Limitless Opportunities." What he referred to was the rapid economic expansion which this country has experienced in the past four decades, and which promises to continue. The "limitless opportunities" lie with those individuals and organizations which contribute to and participate in this expansion. To keep in the vanguard of progress in a time of rapid change calls for a lot of observation and thought; and managements have too little time for this, on top of their daily duties. He asked this question:

"If forward thinking about economic, political and psychological environment cannot be fully done by the officers of the railroads because of their responsibilities for present operations, shouldn't more of them set up ivory tower thinkers of their own—to use Kettering's famous expression, 'vice-presidents of tomorrow'?"

Paying tribute to the railroads' accomplishments and present activity in technological research, Mr. Grotz questioned whether they are doing enough *economic research*—especially in the area of pricing, and price regulation.

There probably isn't anything in the realm of technology—important as that aspect of railroading is—which could do the industry as much service as some approach to sales and pricing which will assure to the railroads the traffic to which they have a sound economic claim. Railroad transportation is economical only with heavy volume. The volume exists—potentially. The solution centers in the traffic department—which, now, enjoys something like the strategic position in railroading that the Air Force does in national defense.

The plan:

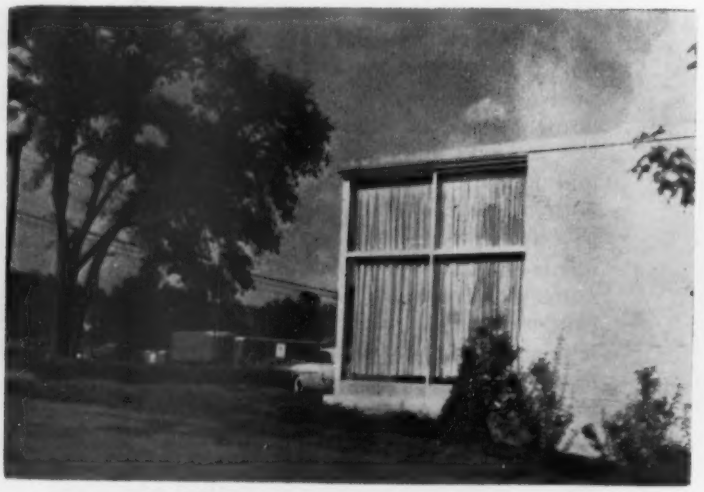


PLANTING PLAN is the foundation for an attractive setting for the structure located at Peoria, Ill.

GOOD-WILL BUILDER . . .

Land Architecture for Railroads

An expert tells how application of sound principles of landscaping will help to sell transportation and build a railway's prestige as a community leader



The results: **LOW-GROWING EVERGREENS enhance the sleek, low one-story appearance of the entrance. SHRUBS on the sloping ground along the sides of the building help prevent erosion.**

By JOHN D. SCRUGGS*

The "extra values" of landscape architecture have often been overlooked because in the past it has seemed sheer estheticism. But now a new approach has been developed. In our office this is called "analytical objectivity."

Quite frankly, we appropriated this phrase for our use because it told a little, suggested a lot, and created conversation. Dissected, it merely means the analysis of objectives. The point is, landscape architecture does have effects upon people and things. It produces psychological reactions in people and it results in physical reactions upon the elements and the pocketbook.

The obvious value of this art to the railroad industry can most readily be seen around stations and office buildings. Take a mythical office building and see what might be done in the way of landscape architecture.

We first set up various categories of objective interest. Each of these units is then analyzed to determine the extent of its specific sphere of interest. With this preliminary analysis (see outline) we are ready for our first discussions with various management personnel. These discussions generally define the problem we must solve.

We readily admit that we didn't think all this up ourselves. For a number of years, we have retained the services of David L. Keith & Co., a public relations counseling firm, which has aided us in solving problems of land architecture for our various clients.

Now let's apply this situation to the grounds of an actual railroad office building which we planned and which early this year won a Plant America Award for the landscaping of its grounds.

The most striking point of the Toledo, Peoria & Western's office building in Peoria is that it is built into the side of a grade. This had a number of advantages. From the street, it presents a sleek, low, one-story appearance. Its maximum absorption of ground temperature cuts heating costs in winter and air-conditioning costs in summer. Visitors may drive in easily, park their cars in a special parking area in front, and enter the lobby with maximum ease.

*Partner, Scruggs & Hammond, landscape architects and planning consultants, Peoria, Ill., and Lexington, Ky.

Evergreens Improve Appearance

Coniferous, or evergreen, shrubs are used to maximum advantage in front to maintain a year 'round, well-kept appearance. They tie the building into the ground, but do not compete for attention or break up the mathematically correct proportions of the building. Shrubs and vines control erosion along the sides of the building, and screen off an exterior power section on the west side of the structure.

Employee parking in the rear, because of the shrubbery and the one-story grade, is practically invisible from the road. Cars can be driven up to the rear door to make deliveries or pick up employees in inclement weather.

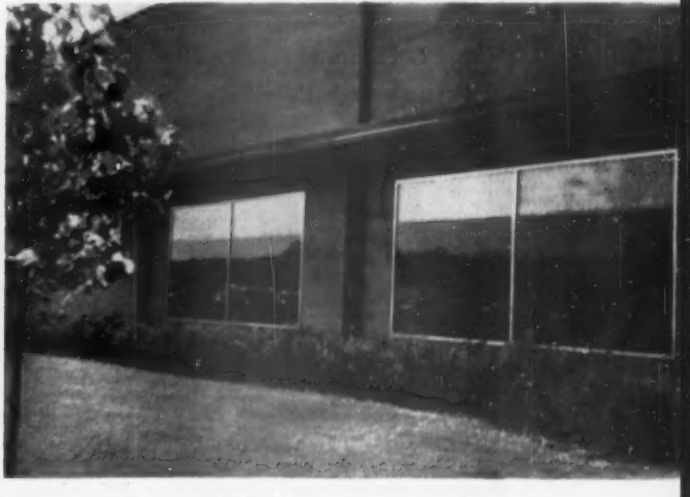
Although other portions of the building are practically windowless, the cafeteria has large picture windows. Because employees enjoy variety beyond the sculptured sameness of evergreens alone, deciduous, blooming shrubs are used in profusion around a small patio near the picture windows. This treatment provides constant bloom and changing scene from spring to late fall.

When the shrubs in the patio reach maturity, they will form a sun pocket, as the patio is on the south side and well protected by the building itself. Even in the dead of winter, when the sun is shining this sun pocket will provide a place where one can step outside for a few comfortable moments after lunch.

One of the minor advantages of the diesel is that these patios are practical. A far greater variety of trees and shrubs can now be planted near railroad buildings than was possible when steam engines were in general use. A bench, sunning chairs, etc., now become a practical possibility rather than an impossible well-meant gesture.

So much for office buildings. Stations of the railroads across the country have been landscaped in the past with perhaps a little too much formalism. There has been a

LARGER BUSHES will screen off an exterior power section when fully grown.



PICTURE WINDOWS in the cafeteria will open onto a patio surrounded by blooming shrubs.

tendency to overplant evergreens, which are dully the same the year around, and to underplant the unusual items which could attract pleasurable attention at various times of the year. However, we are not overlooking the genius of a railroad that planted a holly tree which became an annual conversation piece in its community.

A phase of landscape architecture and its application to the railroad industry that has untold possibilities is the control and proper merchandising of the view from the train window. Vast sums of money are spent by cities to make their automobile approaches beautiful for the visitor. The same is true of many municipally operated airports. But to my knowledge little has been done by railroads to sell chambers of commerce, horticultural groups, women's garden clubs, etc., on beautifying railroad approaches to a community.

I refer to the hundreds of little cities, towns and hamlets through which railroads pass—towns with pride but without directional leadership to show them an outlet for their pride. How inexpensive it would be, for a railroad, to sell a town on buying rooted cuttings of forsythia at a few dollars per hundred and plant them around the station and along the right of way. That community would know, for a week or two each year, that passengers on trains, as they went through, would see and remember "forsythia town." Perhaps financial aid, particularly near the station, could be given in some cases. Properly organized and merchandised, such activities could be a tremendous aid to the selling forces of the railroad in making a good impression on two of their potential passenger groups—the pleasure traveler and the educational traveler.

Another big "plus" to such a program would be the rise in prestige of the railroad in the community and the maintenance of its position as a rightful leader in community growth, development, and pride. What an excellent way to encourage leadership of the station agent! The land is there waiting for the railroads and the landscape architect to bring to it what is called in our profession "the greatest and best use."

One parting thought. An artist watching the landscape from a train window would see hundreds of "pictures" which could be pointed out to a mother searching for ideas to keep the children busy. A teacher would see games to play. A planning consultant would see agricultural, economic, geologic formations, and countless

PRELIMINARY OBJECTIVE ANALYSIS (For Discussion Purposes)

Atlantic—Pacific Railroad Company
New Main Office Building

Possible Board of Directors' Objectives:

1. Personal pride in appearance of the planted grounds.
2. Proper planning of available space for most efficient use.
3. Maintenance of leadership in all fields.
4. Expansion made possible.
5. Prove to stockholders money is well spent.

Possible Management Objectives:

1. Minimize maintenance costs.
2. Climate control to reduce heating and air-conditioning costs.
3. Shipper and stockholder publicity values.
4. Aid in solution of security problems.

Possible Community Objectives:

1. "Fit into" the neighborhood.
2. Create a show place—a talking point for the community.
3. Encourage and set example for like activity in both public and private buildings.
4. Educational to youth as a model operation.
5. Fit into tours and visitor programs.
6. Hide unattractive working areas of building.
7. Visual and auditory screen to reduce neighborhood complaint possibilities.
8. Possible neighborhood use.
9. Screen areas of building which, for economy, were not "faced."
10. Screen out unsightly parking areas.

Possible Employee Objectives:

1. Special outdoor areas for relaxation during lunch and coffee periods, protected from view and with climate control.
2. Make good impression on personnel seeking employment.
3. Create favorable conversation about the place of employement as blooming schedule develops.
4. Aid in development of employee self-respect.
5. Encouragement of new (particularly female) employees to leave downtown district and work in an atmosphere where equal shopping and social values are lacking.
6. Covered protection while awaiting public transportation.
7. Ease of circulation, and protection against elements and trespassers between parking area and building.
8. Provision of off-duty recreation areas.
9. Constantly changing planting scene to create interest rather than drabness in place of work.

Possible Shipper Objectives:

1. Demonstrate company self-respect and respect for employees.
2. Create interest in visiting and revisiting.
3. Ease of entrance and parking for visitors.
4. Publicizing opportunities.
5. Year-round attractiveness at visitors' entrance.

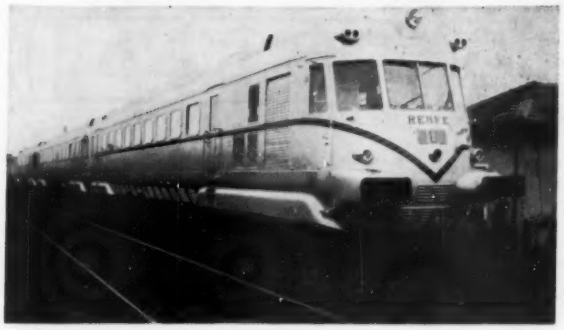
Possible Stockholder Objectives:

1. Publicity and advertising values as a progressive company.
2. Minimum cost of building and grounds maintenance.
3. Pride in their stockholdings.

Possible Supplier Salesmen Objectives:

1. Ease of locating office building.
2. Entrance drives well routed and marked.
3. Parking close to visitors' entrance.

other facets of city and country. These, if brought to the attention of varied passenger groups, could make a trip on a train the most pleasant, entertaining, instructive, and profitable method of travel.



Diesel M-U Trains in Spain

The Spanish National Railroads (RENFE) has ordered 20 Italian motor trains built by Fiat Railway Materials Section, Turin, Italy. Three other similar trains are being supplied to the Portuguese Railway Company (CP).

These trains, designated as "Type 080" and "Type 083," are each formed of three elements: a power car, a trailer in the middle, and another power car. Each power car is driven by a 505-hp diesel engine, mounted on the body of the car under the floor.

The engines have 12 horizontal cylinders arranged in two opposed banks of six. The transmission is mechanical, through a five-speed synchromesh gear box and a three-plate semicentrifugal clutch mounted directly on the engine.

The internal arrangement of each of the power cars gives two driving compartments, luggage compartment, two vestibules, two lavatories and seats for 64 passengers. The trailer coach has two driving compartments, two lavatories, two vestibules and two passenger compartments (one for 27 and one for 19 passengers), a bar and a kitchen. Seating accommodation thus totals 174 passengers. Holes are provided in the ends of the seat arms for the fitting of small tables which are used for serving meals.

The trains are heated in winter by warm air using the heat from the engine cooling water in the power cars, and a coal-fired boiler and heat-convectors in the trailer. The Portuguese trains have Stone air conditioning equipment which keeps them cool in summer and warm in winter. The electric power required for this equipment is supplied by a 60-hp auxiliary diesel engine generator set housed in the luggage compartment.

The top speed of the train is 75 mph. The trains can be split up, as there is a driving compartment at both ends of each power car and trailer.

Benchmarks and Yardsticks

IN THIS SPACE TWO WEEKS ago your reporter set down some rather gloomy opinions about the absence of any genuine and concerted effort in this country—especially on the part of business—to preserve private enterprise; and the consequent trend to socialism which is inevitably progressing, as one citadel of private enterprise after another is surrendered.

A brighter side of this picture lies in the observation that people very seldom get really enthusiastic about principle until disregard for it begins to do them some damage. Some of the best known of the saints did not turn to sanctity until they had first tasted some of the bitter fruits of a contrary line of conduct.

It follows, probably, that—to get a real crusade against socialism going—more people have got to have some of the unpleasant experiences of socialism that the railroads have already suffered.

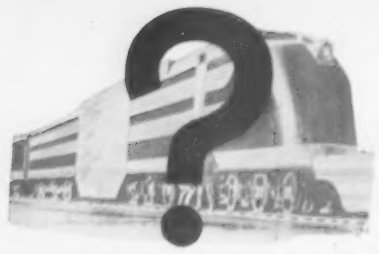
From this point of view (and that is all it is), it might be a good thing for the country if the railroads would quit trying to protect the community from all the consequences of socialistic policies in transportation. For example—the policies of most state and local governments have made it practically impossible for railroad suburban service to be anywhere near self-sustaining. But it is railroad owners and railroad shippers who are suffering the consequences of these policies—not the communities whose political leaders are responsible for them.

Is it any favor to the public interest thus to shield communities from the evil effects of the policies they adopt? Granted that these burdens may be hard for the railroads to get out from under, should they not at least make a relentless effort to do so?

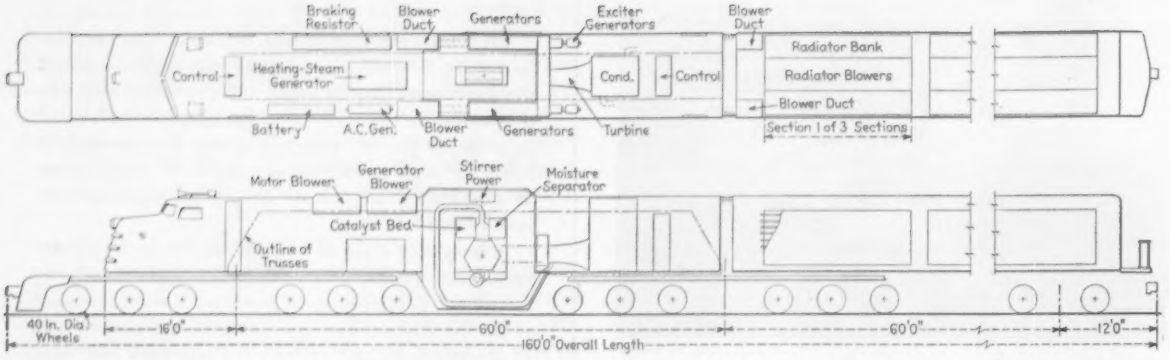
And is it—in the long run—any kindness to an industry which puts the railroads in a mere "stand-by" status, for the railroads to keep a rate structure for the benefit of these undependable customers which does not make them shoulder at least some of the economic consequences of their behavior? Present pricing practice is hardly fair to the dependable customers.

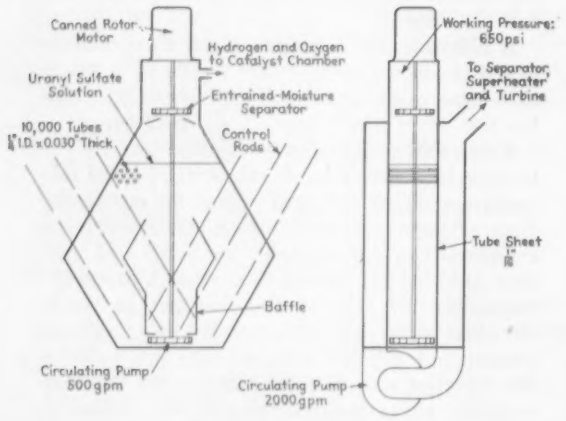
Again, let it be emphasized, the foregoing is not meant to be the expression of a fully considered conclusion— but is an idea on which your reporter would be happy to receive enlightenment. In training a child to take care of himself, he is not shielded from all of the unhappy consequences of his misbehavior. Enough of these consequences are allowed to touch him, to give him practical knowledge in distinguishing right from wrong. It might well be that public knowledge of sound economic policy, also, can best be imparted in much the same way.

J.G.L.



What Will the Atomic





ABOVE—Phantom plan and elevation of the proposed atomic locomotive showing arrangement of equipment. LEFT—Longitudinal and transverse sections of the reactor and heat exchanger for producing 160,000 lb of saturated steam per hour at 250 psi.

What it would take to build an atomic-powered locomotive is outlined in the following summary of a report by Dr. Lyle B. Borst, director of research of the University of Utah, presented at a meeting of the Atomic Industrial Forum in New York.

The locomotive design was worked out by graduate students at the University of Utah, assisted by members of the faculty and representatives of manufacturers and railroads. Such a locomotive has been found technically feasible. The design considered would be a 7,000-hp

ATOMIC MOTIVE POWER – AN EDITORIAL APPRAISAL

This article undertakes to outline the basic requirements of an atomic powered locomotive and leaves to others the problems of fitting these requirements into practical limitations.

The greatest difficulties to be surmounted by a builder would probably arise from contamination —i.e., protection of personnel from radioactivity. Leaks in some of the 10,000 tubes with 40,000 welds in the reactor-heat exchanger might not result in any of the uranyl sulphate getting outside the locomotive, but they might prevent any maintenance of the reactor.

The authors state that the steam turbine would become radioactive, and suggest it should be designed to operate without maintenance. Perhaps this would be possible, but up to the present no steam turbine has been able to meet the requirements of locomotive operation, let alone run without ever going into the shop.

The designers suggest that the locomotive radiator unit be run ahead of the power unit to avoid damage to the power unit in a wreck, but it is conceivable that a sideswipe or a derailment could break open the reactor. In such a case, it is conceivable that it might be necessary to abandon that part of the railroad.

Another factor which has caused engineers to wonder is if so much horsepower in heat can be transferred from the reactor fluid to the steam in so small a vessel with such small differences of temperature.

As now proposed, the locomotive would seem to have limited application. Since the size of the reactor shielding must be about the same for either a large or small unit, economy dictates that it should be large. To justify its cost, it would have to operate in preferred service and this, in turn, means it would, in a sense, have to be subsidized by the other motive power on the railroad.

But in this day of rapid scientific development, it is foolish to say that anything as nearly feasible as this cannot be accomplished. Assuming that such a locomotive may one day become practicable, the question for railroad operators is when. That is anyone's guess, but it quite obviously won't be tomorrow—or the day after. It is popular opinion that the diesel has swept the steam locomotive off U.S. railroads. Actually it has been 29 years in the process and there is still a lot of steam power in service. An atomic locomotive will have the advantage of much new scientific development, but it also has much higher hurdles to clear.

Locomotive Be Like?

A feasibility study by graduate students at the University of Utah, with assistance from faculty members, railroad men and manufacturers, suggests that technical difficulties can be overcome

unit, having 12 driving axles and a total length of 160 ft.

The reactor would be of the water boiler design, 2 by 3 by 3 ft, having an output of 30,000 kw of heat in the form of 250 psi steam. Contaminated steam would be used to operate a conventional condensing turbine, the heat being rejected through finned radiators to the atmosphere.

Power transmission would consist of geared generators and conventional traction motors. Electric locomotive performance would be achieved because of the overload capacity of the reactor. A short-time output of 9,000-12,000 hp could be attained.

Economic studies are necessarily incomplete in the absence of fuel costs (i.e. the price of Uranium 235). If U^{238} costs were less than $7 per gram, the locomotive would compete with present diesel units under average present operating conditions. If U^{235} costs were less than $25 per gram, the locomotive could compete with equivalent diesel power under optimum conditions of load and service.

Problems of health and public welfare are considered technically soluble, although the exact arrangements have not been detailed.

Duty and Specification

The only real economic incentive for atomic power comes from a possible reduction in fuel costs. This is particularly true of the first few locomotives. At a future date, if atomic units replace diesels, there may be further economies due to the retirement of fueling equipment in the same fashion that diesels have retired extensive watering facilities. Atomic units will require infrequent refueling, but it must be done at an elaborate central facility.

An important characteristic of a reactor is that its output is not proportional to its expense. A 1,000-kw reactor may require 5 ft of shielding whereas a 10,000-kw reactor might require 5.5 ft. Each must have about the same control system and safety devices. The initial quantity of fuel required might differ by as much as 10 per cent. However, the heat exchange system is proportional to power rating, and its cost may increase rapidly with output. The locomotive proposed is, therefore, as large a unit as would appear to find use in present railroad practice. Reactor and shield weight probably cannot be reduced much below 400,000 lb. With chassis and necessary auxiliaries, it is bound to be a large and heavy locomotive.

Maintenance costs associated with the reactor are likely to be low. Maintenance within a reactor shield is prohibited by the radioactivity. The reactor must therefore be designed with such care that failures within the shield are extremely improbable. In the event of a failure of the reactor, the locomotive can be expected to be out of service for months and perhaps years. Other equipment—turbine, heat exchanger, generator and motor—would be of conservative conventional design and would entail normal maintenance. The turbine would presumably require less maintenance than reciprocating diesel engines of comparable power.

Because of its size and cost, the atomic locomotive will seriously lack flexibility. In order to compete with other motive power, it must haul heavy loads at high speeds with short turnarounds. In principle, it should be capable of simple operation. There is no reason why during normal operation a steam pressure gage, ammeter and throttle cannot be the operating instruments.

Reactors are capable of virtually infinite power output. They are limited in practice only by the requirement of heat removal. If the proper heat extraction and energy conversion system can be developed, the atomic locomotive should be capable of electric locomotive performance.

The continuous duty power selected in the proposed design is 7,000 hp, to compare with four 1,750-hp diesel freight units. An output of 10,000 hp or higher could probably be available for short time duty. A conventional condensing steam turbine was selected as the prime mover, geared to four a-c generators. The steam pressure conditions selected were 250 psi saturated (superheat is quite possible) and 3 psi exhaust pressure.

Twelve motor-driven axles give a reasonable wheel arrangement. Using an axle loading of 60,000 lb, the complete unit can weigh 720,000 lb. Motor ratings for continuous service are then 600 hp per axle, about equal to the Union Pacific gas turbine units.

Permissible dimensions accepted for design are 60 ft between truck centers, 10 ft width, 16 ft height above rails, and 6-in. clearance above rails. Present plans call for a trailer to carry the condenser cooling radiators.

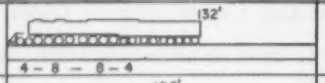
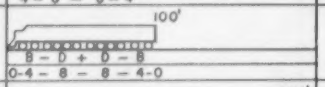
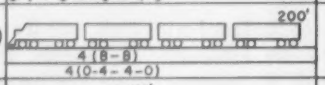
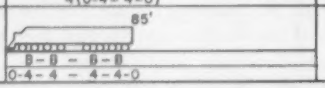
General Description

The locomotive as presently visualized is illustrated. It consists of two units having an overall length of 160 ft. The traction unit would lead, the heat exchanger unit trailing. This order might be reversed if desired.

Of this total installation, the power is derived from a reactor vessel measuring about 1 by 3 by 3 ft. This reactor (including pumps, steam separator and recombination system) is surrounded by a massive shield 4 ft thick weighing approximately 400,000 lb.

The turbine receives steam through a spiral steam

Here's the comparison . . .

LOCOMOTIVE TYPE	WHEEL ARRANGEMENT	NO. OF TRACT. MOTORS	NOMINAL HP RATING AT GEN. FOR TRACTION	WEIGHT IN LB APPROX. ON DRIVERS	WEIGHT IN LB APPROX. PER DRIV AXLE	MAX. CONTINUOUS TRACTIVE FORCE AT DRIVERS	MAX. CONTINUOUS TRACTIVE FORCE AT DRAWBAR	% ADHESION USED
STEAM 4000-4024			6670 AT CYL.	540,000	67,500	129,950 (135,375 AT CYL.)	128,600 AT 10 MPH	24.0
ATOMIC X-12		12 74/18	7200	720,000	60,000	157,500	156,470 AT 14.1 MPH	21.9
DIESEL (4-F7'S) 1400-1496		16 62/15	6000	992,000	62,000	160,000	158,650 AT 11.5 MPH	16.0
GAS-TURBINE 51-60		8 74/18	4500	552,000	69,000	105,000	104,270 AT 12.9 MPH	19.0

CHARACTERISTICS of the proposed atomic locomotive compared with those of existing types of steam, diesel-electric and gas turbine-electric locomotives.

line (to prevent leakage of neutron and gamma ray radiation), and operates on slightly radioactive steam. The exhaust steam is condensed in a tubular condenser extending to the top of the cab. Condensate is pumped back into the reactor. Condenser water is pumped to the second car and then through heavy duty finned radiators where the heat is transmitted to a large stream of cooling air. The turbine would be geared for generators on both sides of the cab. The generators and gears would constitute part of the reactor shield, and would not contribute additional weight to the locomotive.

The shield would constitute the center panels of a heavy duty bridge truss which would transmit its weight to the traction assemblies.

Auxiliaries such as train-heating steam generator, dynamic braking system, motor cooling blowers, auxiliary a-c generator, etc., would be placed in appropriate positions.

The anticipated performance of the proposed unit, designated X-12, with that of steam, diesel and gas turbine units of comparable ratings is compared in the charts.

Nature of the Reactor

(1) Physical Description: The vessel to contain the liquid fuel, which is an aqueous solution of uranyl sulphate, must be able permanently to withstand high temperature and pressure, corrosive liquids, and very intense radiation. It must be absolutely leak proof; and it must be made of a material whose nuclear properties will not adversely affect the fission chain reaction. High grade stainless steel fulfills the reactor's structural requirements.

The shape chosen to contain the liquid fuel, or "soup" as it is frequently called, is a hexagonal slab. Adjacent to each of the two hexagonal faces is a water reflector. The two reflectors are connected by 10,000 heat transfer tubes which perforate the soup vessel. Note that 40,000 welds will be required to install the 10,000 tubes, each of which will consist of two concentric stainless steel tubes of 0.015 in. wall thickness. The water which circulates through the tubes and reflectors serves a dual purpose since it is the source of the steam for the turbine and an essential part of the nuclear reactor.

TABLE 1—OPERATING CONDITIONS

Reactor heat generation (continuous)	30,000 kw
Steam pressure (saturated)	250 psi
Reflector temperature	405 deg F
Soup temperature	460 deg F
Exhaust pressure	6 in. Hg
Saturation temperature	140 deg F
Steam flow	120,000 lb/hr
Turbine power (continuous)	8,000 hp
Efficiency (estimate)	20 per cent
Auxiliary power	1,000 hp
Power for traction	7,000 hp
Turbine speed	6,000 rpm
Generator speed	1,000 rpm
Heat to radiators	70,000,000 Btu/hr
Water flow through radiators	5,000 gpm
Air flow through radiators	10,000,000 lb/hr
Refuel	3 to 6 times yearly

The vessel extends above the hexagonal volume occupied by the soup to provide space for expansion, moisture separation, and a recomposition chamber for the hydrogen and oxygen resulting from radiation decomposition of the water. In the soup volume portion of the vessel are the soup circulation equipment and the control rods. Circulation of the soup may be accomplished by a system of baffles and a circulation pump. The control rods which consist of sheets of material of the appropriate nuclear characteristics, are perforated to maintain circulation. Pertinent data appears in the accompanying Table 2.

Since the soup will be very radioactive, corrosive, and under higher pressure than the reflectors, double wall construction of the soup vessel is proposed to satisfy the leak-proof requirement. Air or water can be passed continuously through the space between the walls and then through a radiation detection device, where an increase in radioactivity would indicate a leak in the inner wall. Then remedial steps could be taken before a leak developed in the outer wall (which would result in contamination of the turbine-generator system).

TABLE 2—REACTOR CHARACTERISTICS

Power	30,000 kw
U235	19.8 lb
Uranyl sulphate weight	30.6 lb
Water	535 lb
Vessel thickness	11.85 in.
Total volume of 10,000 tubes, 0.315 in. o.d.	5.3 cu ft
Net volume of 10,000 tubes, ¼ in. i.d.	3.36 cu ft
Weight moderator in tubes	178 lb
Fraction of moderator in tubes	1/3
Volume of 176-kg soup	7.17 cu ft
Distance between tubes	0.134 in.
Tube surface	800 sq ft

The reactor will be at the center of a 10 by 15 by 15 ft shield and oriented so that the hexagonal faces are perpendicular to the direction of motion of the locomotive. This provides a distance of 4 ft from the outer face of the reflector to the face of the shield adjacent to the cab.

The shield material will be approximately ½ steel and ½ hydrogenous material of about unit density. The nuclear requirements are that the high and low density materials appear in alternate layers.

To minimize the wreck hazard, it is proposed that the shield be designed as a series of containers, then each steel layer of the shield would be a potential container if the soup vessel should rupture.

(2) Nuclear Properties: The proposed nuclear reactor is a homogeneous thermal reactor. Uranium-235 is the fissionable material; water is used for the moderator, reflector, and coolant.

The uranium, in the form of uranyl sulphate, is dissolved in the water moderator to give a homogeneous solution. The choice of this compound is based on its high solubility and the radiation stability of the sulphate ion compared with other anions.

The moderator water will undergo radiation decomposition into hydrogen and oxygen at the rate of 32 gallons per second, when operating at full power. At this rate, 10 per cent of the moderator would be lost in 13 minutes operation at full power. Thus, the hydrogen and oxygen must be recombined and the water returned to the soup in order to maintain a constant moderator-to-fuel ratio.

When gases rise from the soup through the moisture separator, they will be pumped to a catalytic combustion chamber and recombined, and water will be returned to the soup. The rate of energy release from recombination will be 500 kw when the reactor is operating at full power.

(3) Heat Transfer: The 10,000 tubes which perforate the soup present a surface of 806 sq ft for heat transfer. For a temperature difference of 60 deg F this is reasonable for a forced convection system.

Since the circulation in the reflector is much too fast to permit separation of steam and water by gravity, a steam separator must be included. A system in which the direction of the steam is changed to force the water out centrifugally should be adequate.

The heat produced after shut-down can be dissipated by continuing to operate the reflector circulating pump.

(4) Control: The fission chain reactor is controlled by positioning sheets of a material which has a very high neutron absorption cross-section. Boron or cadmium steels are usually used. For this reactor, the control sheets must be perforated to permit circulation of the soup. In addition, the control rods must be designed so that a sudden change in acceleration, resulting from a wreck or other emergency, will cause them to fall into place by gravity.

Starting up the reactor is accomplished by removing the control rods. When the desired power level is attained, the rods are positioned to make the reactor "critical"—which means the chain reaction is just maintained. Thus, starting is not instantaneous, but a certain time is required to attain the desired power. Similarly, when the control rods are inserted, a period of time is required for the chain reaction to die out, and it is necessary to provide for heat dissipation after shutdown.

(5) Refueling: The build-up of fission products in the soup introduces an extreme radiation hazard in the refueling operation. This necessitates a highly specialized fueling station using remote control methods. A chemical processing plant may be included, or the spent fuel sent elsewhere for separation of the remaining U^{235} from the fission products.

Since the reactor can operate for a comparatively long time before refueling, the high cost of the fueling station will be offset to some extent by the need for possibly just one station.

The Turbine

The operating conditions used in this discussion are listed in Table 3. It would be desirable to find a method in which saturated steam was not used. Superheat might be achieved by utilizing the heat potential of the reactor shield. This would involve a system of elaborate piping throughout the shield, and such a proposal is not considered in this report.

A final moisture content of 21 per cent in the latter turbine stages would cause excessive erosion of the blades of these stages. Some system making use of a steam separator might be examined in a future re-evaluation, but for the present report the conditions stated are used in the design data.

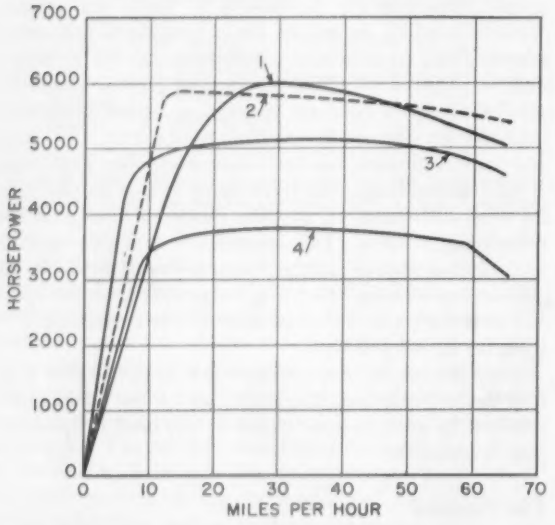
Since the turbine is about 25 per cent efficient, and since the input heat is 100 million Btu per hr, the turbine

TABLE 3—TURBINE CHARACTERISTICS

1. Power requirements:	
a. Output	8,000 hp
b. Overload output	10,000 hp
2. Throttle conditions:	
a. Saturated steam	250 psi
b. Temperature	400 deg F
3. Exhaust:	
a. Back Pressure	6 in. Hg (3 psi)
b. Temperature	140 deg F
c. Moisture content	21 per cent
4. Operate as contaminated unit	
5. Speed	6,000 rpm
6. Dimensions: Unit must be placed in a space 10 ft wide by 15 ft high with minimum length	

Speed and horses . . .

CURVE	LOCOMOTIVE TYPE	NOMINAL HP RATING AT GEN. FOR TRACTION	UP SERIES
1	STEAM	6670 AT CYL.	4000-4024
2	ATOMIC X-12	7200	
3	DIESEL (4-F7'S)	6000	1400-1496
4	GAS TURBINE	4500	51-60



SPEED-HORSEPOWER curves for Union Pacific types of steam, diesel-electric and gas turbine-electric locomotives and for the proposed atomic locomotive.

uses about 25 million Btu per hr. The remainder, 75 million Btu per hr, would be dissipated in the condenser, which would be arranged with the pipes running from side to side having a total width of six feet. The cooling water from the radiators would be piped into one side of the condenser, and removed on the opposite side, flowing horizontally through the pipes.

A feed pump at the bottom of the condenser would pump the return water to the reactor. This pump would have to be capable of pumping 250 gal per minute.

Heat Transfer

The feed water to the reactor-boiler must be a closed cycle. This means the degraded steam from the turbine has to be condensed before it is fed back into the reactor. The condenser is a horizontal-tube surface condenser, with water as the cooling liquid. The volume of cooling water required is so large, 300,000 gal per hour, that it must be conserved. Radiators, mounted on a second unit, will have to be used to cool the condenser water by dissipating the heat to air.

Electrical System

The transfer to the twelve locomotive axles of the 7,000 hp produced at the turbine shaft is to be accomplished by an electrical system. It will consist of a doubly symmetrical, double-reduction gear set, giving a speed reduction of 6.25 to 1 from turbine to generator, and of four separately excited d-c generators and twelve traction motors, one driving each axle.

The generators are to fit a symmetrical spacing on either side in the rear of the reactor shield, with two generators on either side, one above the other.

Contaminated Turbine

If a closed steam cycle is used, there is no reason why the turbine should not operate on steam generated within the reactor. Such steam will inevitably carry radioactivity and will contaminate the turbine. The level of radioactivity in the region of the turbine would not compare with the level within the reactor, so that no shielding has been shown in the drawing. Maintenance of the turbine will be rendered more difficult by the presence of contamination. The ideal design would call for a zero-maintenance turbine.

Startup Procedure

Reactor accidents up to the present time have never occurred in a stably operating reactor. They have all occurred in connection with reactor startup. A reactor stably operating at full power, if properly designed, will respond to changes of operating conditions in such a way as to reestablish the initial conditions.

The establishment of a chain reaction is a tricky and time consuming operation. Reactor shutdown is simple. Rods of neutron absorbers are inserted and that is all there is to it. Reactor startup requires a trained and experienced operator in addition to high quality instrument and control systems.

Each reactor type has typical startup characteristics. In the case of the proposed reactor, startup should probably be comparatively quick and easy. In predicting the characteristics of the present locomotive, it would be unwise to assume that the locomotive could be ready for service in less than half an hour after a man went aboard.

During a run or at anytime when an operator is present, the reactor could be reduced in power to perhaps one per cent of the full power. Rise to operating power would be easy and quick. If the turbine were idling, the power required might be five per cent.

It is only when the locomotive is left in the yard unattended that the reaction must be thoroughly quenched with shut-off rods. Thereafter the chain reaction must be reestablished under rigid supervision.

What About Accidents?

In the case of a wreck, the first and all important operation which must be carried out with absolute assurance is to shut the reactor off. Safety devices must be devised so that under any imaginable situation the chain reaction will be stopped.

The principal criticism of a reactor of the type described is that the fuel is liquid. In terms of safety a solid fuel reactor is superior to the one described. The fuel container must at all cost be kept intact! It is well guarded by a four-foot 400,000 lb shield, which can be

constructed so as to safeguard the vessel. The whole assembly would be designed to withstand shock, but to safeguard the reactor in case of a wreck, the detailed design of equipment would require a high order of ingenuity.

Economics Appraised

A comparison of the economic possibilities of the proposed locomotive with current diesel and steam practice must necessarily be incomplete because of the classified or secret status of the price of uranium. The present discussion will therefore be limited to developing a price for uranium which would make atomic power equivalent to diesel power. It is estimated that the atomic locomotive could be built for $1,200,000, not including development costs.

Water requirements should be negligible since the turbine and reactor system must be hermetically sealed to avoid release of radioactive materials. Refueling might require two or three days once or twice each year. One hour to start the reactor after complete shutdown should be ample. Experience may reduce these estimates.

Economies to be gained from atomic power must come from the cost of fuel. Successful competition with diesel operation will first come under conditions of high duty factor. The duty to which the average diesel is put is equivalent to approximately 200 hours of full power operation per month. The price of fuel is initially estimated on this basis.

TABLE 4—ANNUAL COST COMPARISON

(10 Year Amortization)

	Atomic	Diesel
Payment (16 per cent)	$192,000	$ 96,000
Repairs	50,000	50,000
Lubrication	3,000	10,000
Fuel (200 hr per month)	.....	120,000
	245,000	276,000
		−245,000
Calculated advantage		$ 31,000

Amortization is assumed over a period of ten years. Financing is assumed to be based on 15 per cent equity money and 85 per cent equipment trust funds at an interest rate of 3.5 per cent. Taxes and insurance are assumed at 3 per cent of the purchase price. These charges are equivalent to a total annual charge of 16 per cent. Annual costs on this basis are summarized in Table 4.

It is evident that the type of service to which the locomotive is put is the major economic factor. It must be used in heavy duty service where its power is fully utilized to admit of the highest equivalent uranium price. High-speed, high-power service is the combination which will first justify its use.

AN OPERATING MAN by background, a traffic man by instinct, is the Pennsylvania's new president. He claims: "The traffic is there, and the railroads can get it."

THE FUTURE . . .

What Jim Symes Is Doing About It

New PRR president says need of country's "greatest natural resource" is bigger share of traffic

This is not a profile. Nor is it a career sketch. James M. Symes (rhymes with "hymns"), who took over the presidency of the Pennsylvania on June 1 (*Railway Age*, May 17), is well known to many railroaders over the country. For more than four years he was operating-transportation department vice-president of the AAR, and thus worked closely with nearly every operating staff in the country. His work in this key post brought offers for high positions, including presidencies, from other roads. He turned them down to go back with the Pennsylvania as general manager, Western region, but never lost his interest in the problems of, and developments in, the industry as a whole. And, as one associate says, "his head is still the same size it was 30 years ago —only a lot fuller."

More important to get on the record is what the new

"My guess is that for the long pull in trailers-on-flats, we will take anything from anybody."

president of the country's busiest railroad (about 10% of the freight and 15% of the passenger traffic) thinks about the future of the PRR and of the railroad business.

First, he is an optimist. Second, he is an enthusiast. Third, he is a realist. He describes both the good things and bad things ahead with zest; says he has a fine team of young, alert men to help him; and exudes confidence based obviously upon judgment, and not upon dreams.

Piggyback Movement

Trailer-on-flats (the road is currently offering prizes to its employees for a beter name) has for Jim Symes "a terrific potential for the railroads, for shippers, for truckers, and for the motoring public." For him, piggyback means more than a bit of added traffic—it is a whole new way of doing business faster and at less cost.

For its first experiment, effective June 16, the PRR has chosen to try out operation of railroad-owned trailers between a limited number of on-line points, on railroad billings. But this by no means rules out further consideration of movement of trailers of independent common carrier truckers—nor those of contract truckers, forwarders or of shippers themselves. Mr. Symes guesses "that for the long pull, we'll take anything from anybody."

Asked whether trailer hauling on rails is here to stay, the new PRR chief replied: "There is no doubt about it in my mind whatsoever." He sees a future even in bringing transportation of household goods back to the rails in moving van trailers.

The aspect of piggyback which brings a gleam to his eyes, however, is the future promise that it will help railroads cut their terminal costs at origin and destination. And he means, chiefly, terminal costs of carload freight.

The PRR has special reasons for being interested in cutting these costs. With nearly 9¾% of Class I railroad gross in 1953, and 10% of their investment in plant, the Pennsylvania got less than 5% of the net. Large cities served by the system are costly to serve. Their terminals are difficult to mechanize; increased traffic seems to cut, rather than increase, productivity. New York requires extraordinarily high cost marine operations.

Yard Revamping

While he thinks city terminal operations are the most difficult to improve, the new president is by no means gloomy about savings already on the way to realization in major classification yards—which he calls "mass assembly plants" for efficient road-haul.

Rebuilding Conway, just west of Pittsburgh, into a modern retarder hump yard will save about $10 million a year on a cost of $34 million, and, at the same time, cut through east-west freight transit time by from two to 10 hours a trip—representing almost 1½ million car-days. Enlargement and modernization of Morrisville, Pa., will care not only for the new Fairless steel plant, but produce big savings in handling 2,000 cars a day formerly handled at three separate yards in Trenton, N.J. The transfer of business from 52nd Street yard, Philadelphia, to more modern yards in the area, will save $1 million a year and improve service.

Dieselization

A large share of the more than $1 billion spent by the PRR in new and modernized plant and equipment in 1948-1953 went for diesels and for facilities to repair them. In addition to its 272 electric locomotives, the system now has 1,446 diesel locomotives (1,984 units) in ownership and currently is leasing 28 additional diesel units. During the traffic recession now leveling off, about 95% of the road's service has been performed with diesel or straight electric power.

The road's present policy calls for retention of about 1,000 modern steam locomotives, in "pockets" concentrated around Altoona, Pittsburgh and Columbus. The PRR must prepare for sharp seasonal fluctuations in traffic.

As the country's largest hauler of coal, for example, it must adapt itself to the large rail-lake movement during the season of open navigation, with a regular, year-around, all-rail movement. It seems logical to handle the peaks by working out unused miles in its remaining modern steam locomotives, employment of which will permit absorbing a 15 to 25% increase in traffic above present levels. Present electrified mileage is proving economical to operate on the basis of its first cost and maintenance. Unless present comparative costs change substantially, however, straight electrification will probably not be extended.

Original studies made of operating savings on "marginal use" diesels (for services with inherently low utilization opportunities) indicated returns of 20 to 22%. Operating forces, however, were able to secure unforeseen efficiency "in the corners," and the road found that additional diesels could be used to produce greater savings. Those recently received will produce savings as high as 42%, while the average return on the entire last group of 78 ordered will be about 33%, or $4 million a year.

Car Renewals

During the six-year, billion-dollar improvement program through 1953, the PRR added more than 30,000 new freight cars to its fleet and gave an additional 143,000 cars heavy repairs. The same program scrapped over a thousand passenger cars and acquired 794—including 328 new ones, and 466 existing cars transferred from Pullman ownership. An additional 3,200 cars were reconditioned or converted. Now looked for are 200 depressed 75-ft flats for what the PRR terms a "modest" experiment in piggyback operation. There will likely be steps made also to increase the supply of Class "A" box cars, provided some traffic increase appears likely. The need for equipment financing has passed its peak, and outstanding total debt of the railroad should drop from here on.

The PRR's equipment maintenance ratio has been dropping steadily in recent years. It reached 22.3% in 1953 and is approaching 21 this year.

In past years, the railroad's ratio has been somewhat higher than the U. S. average. "Built-in" factors which make for a high expense ratio are high ownership, instead of car hire; and higher rate of corrosion and loading damage to hopper cars, which constitute a large proportion of the fleet. Temporary factors now passing were the necessity to upgrade large numbers of cars deteriorated by war use; and the duplication of facilities for steam and diesels. To keep its car fleet in good order, the road is spending $14 million for an ultra-modern shop at Hollidaysburg, Pa., which is expected to turn out up to 50 freight cars a day, at savings up to $2.5 million a year.

By a new method of cost analysis first introduced on the New York division, and now extended to the system, cost control is assigned to a "superintendent of methods and cost control" for each of the regions, with a supervisor on each of six major divisions. This new control not only compares unit costs among individual work locations, but assigns responsibility more directly. For example: at the Sunnyside passenger car facilities serving New York, inspectors formerly looked at specific items on inbound trains. Now each inspects all items on assigned trains, and is definitely responsible for the performance of its equipment on the next trip. The road sees great potentials for improvement in equipment maintenance costs.

"Cutting the cloth" will be one of Jim Symes' cures for high cost operations. This program of constructive shrinkage is quite different from hit or miss liquidation —"which any novice can do."

Traffic changes on the PRR have not been uniform; some lines carry very much higher traffic volume than in the days when they were built in present form; others carry a substantially lesser volume. The line to Mackinaw City, Mich., for example, was designed to move a heavy timber and resort passenger volume. Both have disappeared. The double-track line down the Delmarva peninsula to Cape Charles, Va., was designed for frequent trains hauling local fruit and vegetable production; trucks have diminished that frequency. Furthermore, longer, heavier trains with diesel and electric haulage have cut train density elsewhere, and radio and CTC can increase existing track capacity.

The PRR will undertake a program of progressive removal of double track, or reduction of trackage in multiple-track territory, where existing traffic conditions permit. These changes will cut maintenance costs and taxes substantially. After they are made the railroad will still be able to take on a heavy increase in traffic, above even the wartime highs, on its main traffic routes (where, experience indicates, traffic increases are most likely to occur).

"The railroads ought to be able to make contracts with individual shippers, continuing to serve the wider public as common carriers at the same time."

• Feature theme of the annual report issue of the PRR magazine, "Pennsy," addressed to employees last month, was that a mass-mover railroad must have big volume to enjoy even a small profit. The paper demonstrated that neither the PRR, nor the industry, has shared adequately in the growth of the country's population and commerce. "Getting more freight and more passengers back on the rails" was of serious concern to the retiring president, Walter S. Franklin, a traffic man by career. It is currently a dominant theme in the program of his successor, an operating man in background. His claim is: "The traffic is there, and the railroads can get it."

Truck competition is probably more severe in the PRR's East than in other portions of the country, Mr. Symes believes, and it touches products—like iron and steel—once held to be rail-bound traffic. Part of the road's answer is better service, the piggyback experiment and changed methods of handling less-carload traffic. A more important weapon will be further changes in rates and the principles upon which railroad rates are made as one PRR officer put it: "We must make 'commercial' rates."

The Pennsylvania has taken an aggressive part in the important competitive changes in rates on a variety of commodities, which have been, and are being, put into effect by eastern lines. Their chief aim is to meet competition where it exists, and at a profit.

Jim Symes says that, since the world seems to be turning toward private or negotiated carriage, the railroads ought to be able to make contracts, too, at the same time continuing to serve the wider public as common carriers. He would safeguard greater freedom with regulatory supervision which would prevent price-cutting below actual out-of-pocket costs.

"The railroads are one of the country's greatest existing natural resources. I do not think the thinking people of America will allow them to deteriorate..."

• Forcefully, during the past few years, the new PRR president has insisted that the railroads' can get the kind of climate they need to thrive "by a very simple process" —if Congress would insist on carrying out the National Transportation Policy of 1940. The opposite is now the case. "Every form of transportation other than railroads takes the form of contract and private carriers in addition to common carriers. Only the railroads are required to stick to common carriage. Why?"

Mr. Symes' chief argument is that railroads are one of the country's greatest *existing* natural resources. He believes the thinking people of America will not allow them

"Fares based on a standard rate per passenger-mile are no longer realistic."

to deteriorate by withholding from them the right to fight back. He is counting on effective, articulate public opinion to turn the trick.

The Passenger Problem

Last year, Pennsylvania passenger revenues were nearly 14% of its gross. This contrasts with about 7% for all Class I roads. So high a stake in the passenger field means the road cannot consider passenger service as a by-product, nor treat the passenger deficit as a charge against good will or advertising.

It is working intensively on the problem. The deficit was cut from $60 million in 1952 to $56 million in 1953, despite an overall decline of $14 million in passenger gross.

The road has plans to get rid of the deficit entirely—except for commuter service. At present the intensive New York-Philadelphia-Washington and New York-Chicago "blue ribbon" services are considered "in the black," with reasonable prospects for continuing so. For the most part, other services will have either to be trimmed further, or improved in quality, depending upon potentials.

Rearrangement of schedules may result in lower costs, without detriment to service. Consideration is now being given, for example, to coordinating Philadelphia-New York runs with Washington-New York runs. A complete revision of West Chester and Paoli commuter services around Philadelphia recently accomplished has quickened service frequency about 50% during the middle of the day, with only small increases in costs, and is expected to attract increased revenues.

An important part of the road's program will be experimental fare reductions—like the round-trip rates recently put into effect between Washington, Baltimore and Philadelphia and Pittsburgh. The new president has the conviction that "fares based on a standard rate per passenger-mile are no longer realistic."

Asked whether he thought municipal ownership of new station facilities (as in New Orleans) would help railroads by eliminating property taxes (without, however, any subsidy), Mr. Symes rejoined that it would be better to give the railroads tax relief on existing, adequate facilities—as, for example, the $1,000 a day paid on the PRR's modern terminal in Newark, N. J. When its $27-million improvement program for Pittsburgh is completed, the PRR will be "all set" in its larger major passenger terminals with respect to facilities. What it now needs is to have government authorities "recognize the public service character of these costly terminals."

Mr. Symes prefers to withhold definite "aye" or "nay" on the proposal by President William White of the New York Central that the "single best route" be substituted for present competitive passenger services by railroads. The two roads have conferred about the possibilities of such coordinated service, but so far neither is ready to go along with any specific situations, and all that can be said is that it is a good subject for further study.

Some 15% of the Pennsylvania's gross comes from steel and steel products; another 14% from inbound raw materials to steel mills. Steel companies have been working off their stockpiles, at the same time that outbound shipments have been low. This is a major reason why the traffic decline has been more severe on the PRR than on most other roads during the year thus far.

Truck competition for products of the mills has been keen, but a substantial return of traffic to the rails is looked for in the new iron and steel rates made effective several months ago.

Iron ore furnished 10.5% of total tonnage and 4 1/3% of total revenues in 1953. The road's faith in the future of this traffic is demonstrated by the building of a new $10-million pier at Philadelphia to handle import ore.

The PRR is the country's largest carrier of coal. Mr. Symes is not pessimistic about the future of this traffic. Outside of the still-rich Pennsylvania fields, his railroad is "well established" in Indiana, where potential for new coal production is high, and serves new areas in Ohio. (For example, a new eight-mile line building across the Ohio from Wheeling, W. Va., will serve new mines to be opened this year. One of them will have capacity for production of a million tons a year within the next three years.) An important factor, he says, is the constant increase in demand for coal from users in the road's industrial areas. Thus, no matter what the origin, the PRR will get a haul.

On the subject of the Seaway, the new president sees red; says the project "is not justified on any grounds." Of all the arguments, he claims, that bearing on national defense is the most foolish; "the Seaway would be a sitting duck target." Meanwhile, its commercial competition will "help destroy a flexible instrument of transportation like the railroads."

Asked about the mixed motives of business interests in their attitudes toward the Seaway, Mr. Symes charged: "It was all politics. Some people wanted it, and they got it." While the railroads may get some extra traffic while the Seaway is being built, "it is traffic with which to hang ourselves." He predicts that the waterway will encourage cheap imports and that lots of enthusiasts for it "won't like it after they get it; if you don't believe we can have cheap imports, look into residual oil from abroad and its effect on coal."

The Future

Jim Symes is optimistic about the future of his railroad. He has definite plans to make success a reality. As one veteran financial editor remarked, after conversing with the new president: "If Symes gets what he is after, PRR stock should go to 50."

"The St. Lawrence Seaway is not justified on any grounds . . . It will help destroy a flexible instrument of transportation like the railroads."

FIRST OF JCL'S "TRAIN MASTERS" ready to leave Jersey City Terminal May 26 with the "Suburbanite," 12-car evening commuter train. The 2,400-hp Fairbanks-Morse diesel unit had been delivered earlier that day.

JCL'S NEW PASSENGER SCHEDULES BASED ON . . .

Railroad-Community Cooperation

The Jersey Central Lines have received five of the seven 2,400-hp "Train Master" diesel units ordered from Fairbanks, Morse & Co., to haul the longer trains operated under new main-line schedules between Jersey City, N. J., and Hampton, which went into effect April 25, when JCL passenger service became completely dieselized. Delivery of the remaining units is to be completed this month.

The new schedules are based on principles developed through conferences between, and the active cooperation of, representatives of the railroad and the Inter-Municipal Group for Better Rail Service, representing all on-line communities from Elizabeth to Raritan, and the Hunterdon Hills Commuters Association. The Inter-Municipal Group designated a seven-man committee to work with railroad representatives in a study of passenger service on the main line and to develop a new schedule. The committee worked for nine months to prepare the schedule which, when completed, was presented to the full membership of the Inter-Municipal Group for official approval and support of member communities. To check the preliminary draft of the proposed new timetable, test runs were made with various types of diesel locomotives and different numbers of coaches, and a traffic study was conducted to determine travel habits and passenger requirements.

"When everybody felt reasonably sure the new schedules provided the best possible service for the greatest number of passengers," E. T. Moore, JCL president, said, "they were studied by the railroad to determine what would be needed in the way of locomotives, passenger equipment, signaling, and so on." The communities represented by the Inter-Municipal Group, its special committee, and the railroad, believe their joint efforts constitute "a unique, practical demonstration of what can be accomplished when interested parties recognize a mutual problem and are willing to give their time and effort to work out a practical solution."

Other major changes necessitated by the new schedules have been completed. Four of the Budd Company's rail diesel cars are operating in long-haul morning and evening commuter service and also provide hourly service

during the day for stations between Jersey City and Cranford, where they connect with express trains leaving Jersey City and Raritan each hour, serving communities between Cranford and Raritan. Two-way signaling work on an additional track between Jersey City and Bayonne has been completed and platform lengths have been increased, where feasible, to accommodate the longer trains. Delays caused by handling a large volume of mail and express traffic on passenger-carrying trains have been minimized by operation of five special trains to handle mail and express.

A new mainline passenger timetable became a "must" when, in June 1952, the New Jersey Public Utilities Commission ordered elimination of four JCL grade crossings at Dunellen, N. J., and one at Plainfield, scheduled for completion June 1, 1955. Elimination of the crossings is being accomplished by raising tracks 16 ft for approximately three miles. This elevation necessitated moving the JCL's passenger-coach yard from Dunellen to Plainfield, because the Dunellen yard will be inaccessible after mainline tracks are raised.

To provide access to the new coach yard at Plainfield, a new bridge has been built over Richmond street, and to provide for train movements between the yard and Plainfield station, new interlocking switches and a new signal control tower have been built. At Dunellen, three special main tracks have been constructed on the south side of existing tracks and temporary interlocking plants have been constructed where the four existing tracks will converge with the three special tracks. Bridge work, street crossing changes, grading, and drainage necessary for construction of the special tracks have been completed.

Contracts have been awarded for bridge construction, street changes and grading for the four regular main tracks.

P&S Officers Meet at Chicago

. . . and study ways and means of improving performance in jobs where "everything is important," but which have been "complicated" by "technological changes"—Inter-departmental cooperation is stressed

Railroad requirements for fuel, materials and supplies were discussed by railroad personnel from the United States, Canada and Mexico at the annual meeting of the Purchases & Stores Division of the Association of American Railroads, held in the Palmer House, Chicago, June 7-9. H. M. Rainie, vice-president, Boston & Maine-Maine Central, and chairman of the division, presided throughout the three days.

Fifty Years of Progress

Philip A. Hollar, vice-president—assistant to president, AAR, addressed the June 7 opening session. Mr. Hollar pointed out that on May 23-24, 1904, in Chicago, the first national group of stores officers gathered to form an organization which would facilitate exchange of ideas for improving procedures and practices. "Our present problems are similar," he added, "but I feel that the founders of our predecessor organization would be amazed with the progress and achievements in the science of service-of-supply that have taken place on railroads during the intervening years."

Reference was made at the meeting 50 years ago, Mr. Hollar said, to the "line of authority" of officers responsible for unapplied materials. "We hear frequent discussion of this subject today," he continued. "May I leave two questions with you for future consideration? These are: Regardless of the framework specified by formal organizational charts, is not the important aspect complete inter-departmental cooperation, communication and contact so that procurement, handling, including storing and distributing, accounting and all related activities are the result of thorough understanding and joint planning by all concerned? How may this objective be best achieved?"

Buyers' Market

Others who addressed the opening session were Mr. Rainie; W. A. Johnston, president, Illinois Central; and W. M. Keller, AAR director of mechanical research.

"For the first time in a number of years," Mr. Rainie said, "we are in a market that favors the buyer and we have got to change our procedure and thinking from the immediate past. It is our responsibility to keep our operating officers currently informed as to availability of materials, particularly on program and special project work, to avoid commitment for materials until date of use is known and funds are available."

"Everything Is Important"

Mr. Johnston told the meeting that with railroad buying of fuel, materials and supplies totaling nearly two billion dollars annually, and average investment in inventory ranging from eight to nine hundred million dollars, the job of railroad purchasing agents has become so big that everything they do is important. Because of these large expenditures, he said, continued study of new purchasing and storing techniques that would help to reduce operating costs becomes imperative.

Development and free interchange of ideas by and

GENERAL COMMITTEE of the Purchases & Stores Division, as it met in Chicago June 6.

Seated are, left to right: W. H. Young, general storekeeper, Seaboard Air Line; J. F. Duffy, manager of stores, Erie; N. B. Coggins, general storekeeper, Southern; H. O. Wolfe, purchasing agent, Gulf, Mobile & Ohio; J. L. Timanus, secretary, P&S Division; C. E. Woodson, executive vice-chairman, P&S Division; H. M. Rainie, vice-president, Boston & Maine-Maine Central; G. E. Wilson, manager of stores, Reading; P. A. Hollar, vice-president—assistant to president, AAR; Clyde Cocke, purchasing agent, Norfolk & Western; C. F. Bayer, manager, purchases & stores, Delaware, Lackawanna & Western; J. R. Fullerton, general storekeeper, Missouri Pacific; and E. A. Bromley, vice-president, purchases & stores, Canadian National. Standing, in the same order, are: C. E. Reasoner, general storekeeper, Missouri-Kansas-Texas; V. N. Dawson, assistant purchasing agent, Baltimore & Ohio; F. J. Steinberger, assistant general purchasing agent, Santa Fe; W. W. Kelly, general purchasing agent, Santa Fe; G. M. Betterton, general purchasing agent, Southern Pacific; C. B. Neubauer, assistant vice-president, Southern; L. G. Kohler, general storekeeper, B&O; W. H. Lloyd, stores manager, Rock Island; C. E. Swanson, assistant general purchasing agent, Burlington; O. O. Albritton, vice-president, Illinois Central; and A. N. Laret, vice-president, Frisco.

among railroads also contribute to substantial savings in costs, Mr. Johnston emphasized. He cited, as an example of savings realized by railroads through co-operation, the work of P&S officers in handling scrap. When "old teapots" and other steam locomotives began to go to the scrap heap in increasing numbers, he said, more and more scrap was produced and was sold on a "mine run" basis. But as information on grading and classifying scrap became available, some classes brought from $2 to $12 a ton more than they did as unclassified scrap, amounting to savings of millions of dollars to railroads.

Toward More Standardization

Mr. Keller said that rapid technological changes of recent years, by bringing all sorts of new equipment and devices onto the railroad scene, have greatly complicated the jobs of railroad purchasing and storekeeping officers. Problems of the railroad purchasing agent of years ago did not include knowledge of where to obtain electronic equipment or new metals such as the non-ferrous type for car construction, he added. Rapid dieselization of motive power, while making for greater operating efficiency and better transportation service, also has added to the purchasing officer's job by swelling stores division catalogs with hundreds of new items and parts.

Steps are underway, Mr. Keller continued, to standardize such supplies to simplify the overall purchasing and storing problem and reduce inventories. A good start on this program, he said, is the work being done to develop a standard specification for diesel lubricating oil. Another step would be setting minimum standards for fuel oil. He also revealed that nine standard floor plans for passenger cars have been accepted by the industry. Success in this type of work, Mr. Keller said, helps reduce varieties of stock maintained and at the same time permits savings through quantity purchases.

Help for Railroads

Addresses were made during the second day of the meeting by W. H. Day, general chairman of the New England Shippers' Advisory Board and manager, transportation department, Greater Boston Chamber of Commerce, and C. G. Grove, chief engineer, Western region, PRR. Mr. Day said many organizations representing industry and commerce are helping railroads, and thereby the general national economy, by supporting railroad efforts to eliminate unprofitable passenger operations. Organizations such as those with which he is affiliated, Mr. Day added, are also helping various transport media to form a common front to oppose forces hostile to private ownership of transportation.

For a Better Job

Mr. Grove told how a railroad engineering department "can do a better job and thus enable the stores department to function more efficiently," which in turn would

result in a more efficient railroad. There are many opportunities in the engineering department, he added, "to plan more carefully and further in advance on projects needing materials so that when authority to proceed is secured, the list of materials and delivery schedules may be ready to be released to the stores department—thus enabling them to . . . get needed items at better prices and of better quality—all leading to lesser costs for the projects."

Two methods for reducing the large railroad inventory of unapplied materials for maintenance, Mr. Grove said, are: Greater care by the engineering department to see that only needed material is ordered; and a continuous analysis of unapplied material by P&S and engineering departments to see that such material is used before more is ordered.

A feature of the June 8 session was a panel discussion on inventory control, which answered questions from the floor. Moderator was J. S. Fair, Jr., purchasing agent, PRR, and panel members were F. J. Steinberger, assistant general purchasing agent, Santa Fe; G. E. Hinton, assistant general storekeeper, Southern Pacific; R. E. Godley, manager of stores, Illinois Central; C. I. Clugh, Altoona works manager, PRR; and Mr. Grove.

C. H. Beard, general traffic manager, Union Carbide & Carbon Corp., addressed the final session on June 9, describing how his firm's traffic department is organized and what it does, and outlined some problems it solves.

New Officers

G. E. Wilson, manager of stores, Reading, was elected chairman of the division to succeed Mr. Rainie, who was named to the division's advisory committee. A. N. Laret, vice-president, Frisco, was elected vice-chairman to succeed Mr. Wilson.

New members elected to the General Committee are H. P. Millar, manager of stores, Canadian Pacific; V. E. McCoy, chief purchasing officer, Milwaukee; F. W. Pettit, general purchasing agent, Western Maryland; and J. R. Beach, general storekeeper, Central of Georgia. Incumbent members reelected to the committee are W. H. Lloyd, stores manager, Rock Island; C. E. Swanson, assistant general purchasing agent, Burlington; and A. L. Prentice, vice-president, New York Central.

It was announced by Mr. Rainie that registration for the three-day meeting totaled 1,172, including 610 railroad representatives and 562 suppliers.

Committee Reports

Reports of 10 subject committees also were presented during the first day of the meeting.

The report of the **Committee on Scrap,** presented by its chairman, G. E. Hargreaves, assistant purchasing agent, Pennsylvania, said some strengthening of the market for ferrous and non-ferrous scrap had been noted during the second quarter of 1954.

Experience has shown that it is economical to use reflective material for certain railroad signs, said the report of the **Committee on Reclamation,** presented by Chairman A. G. Campbell, IC district storekeeper. It was recommended in the report that the committee continue its investigation into methods for manufacture and repair of that type of sign. The committee also recommended that it investigate further the possibility of commercial reforming or reforging of journal bearing wedges, and of rebroaching or reboring secondhand journal bearings for use in interchange service; and develop the possibility of having various shafts used on diesel locomotives reclaimed by electro-plating.

Attached to the report of the **Committee on Material Stock Report,** presented by its chairman, C. E. Woodson, executive vice-chairman of the P&S Division, was a sample modified report form, together with a Consolidated Material Stock Report Summary form, with provision for separate listing of materials for programmed projects, as is now done for ties, rail, and fuel. The committee recommended the proposed revision of the reporting form be adopted.

"Signalling and communications officers agree that modern installations are becoming increasingly complicated and require better educated and highly trained employees for continued efficient operation," said the report of the **Committee on Electronic Equipment.** Presented by committee chairman A. P. Pollard, traveling storekeeper, B&M, the report suggested that advantage be taken of the offers of two major signal-equipment manufacturers to cooperate in arranging suitable training programs for purchasing and stores personnel.

Diesel fuel oil purchased by U. S. railroads in 1953 exceeded the three-billion-gallon mark for the first time in history, according to the report of the **Committee on Petroleum Products and Coal** (chairman, W. H. Weymouth, fuel agent, Santa Fe). The total in 1953 was 3,140,297,050 gallons, 300 million gallons over 1952. Last year was the 11th consecutive year in which railroads increased their diesel fuel oil purchases. In addition, the report said, railroads last year purchased 1,161,155,562 gallons of residual fuel oil, a decline of more than a half-billion gallons under 1952. In 1953 railroads purchased and produced 28,998,120 net tons of fuel coal for operating motive power and fixed-power plants, a decline of more than 10,000,000 tons under 1952.

The assignment of the **Committee on Purchasing Operations Analysis,** said its report—presented by Chairman Clement Comly, III, agent, PRR purchasing department—had been to develop a method of measuring comparative performance in operation of railroad purchasing departments. Analyses of data received from several railroads, the report added, indicate that purchasing performance can be measured in terms of manhours expended on various activities, related to volume of purchases. "They clearly reveal that differences in organization do not preclude comparison, but rather invite evaluation . . . they show that size of itself does not materially alter the overall pattern, although it does vary in its effect on different functions. . . They indicate the effect which varying volumes of purchases should have on manpower requirements."

W. F. Niehaus, assistant purchasing agent, Missouri-Kansas-Texas, presented the report of the **Committee on Purchasing Department Procedures,** of which he is chairman. The committee said it thought purchasing expense can be reduced by: Placing blanket orders with established sources of supply, particularly for non-com-

petitive items—shipments to be made on releases issued by the stores department direct to supplier, copy to purchasing department; making locally through district storekeepers small purchases for which confirming orders need not be issued; staggering orders by classes, specifying deliveries required; and combining requirements of several stores in one order for shipment to and distribution from general store or one multiple destination order.

Essay Contest

The June 8 session opened with the report of the **Annual Essay Contest Committee,** of which Clyde Cocke, purchasing agent, Norfolk & Western, is chairman. Mr. Cocke introduced the authors of the two winning essays in this year's contest:

Leo C. Boyd, chief clerk, Baltimore & Ohio, and Frank U. Luthey, head clerk, stores department, Santa Fe, both of whom read their essays to the meeting.

Mr. Boyd's essay was titled "The Importance of Closer Cooperation Between P & S Departments and Using Departments to Avoid Purchase of Materials too Far in Advance of Their Scheduled Requirements." Mr. Luthey's paper was called "The Value of Human Relations in the Transportation Industry."

Among committee reports on June 8 was that of the **Committee on Material Handling,** presented by Chairman J. K. McCann, assistant general storekeeper, Burlington. The report said that test shipments of bolts, nuts and rivets in specially developed containers were unloaded and stored at about one-third the cost of conventional containers. Storage space required was 40% less than would have been required for conventional containers.

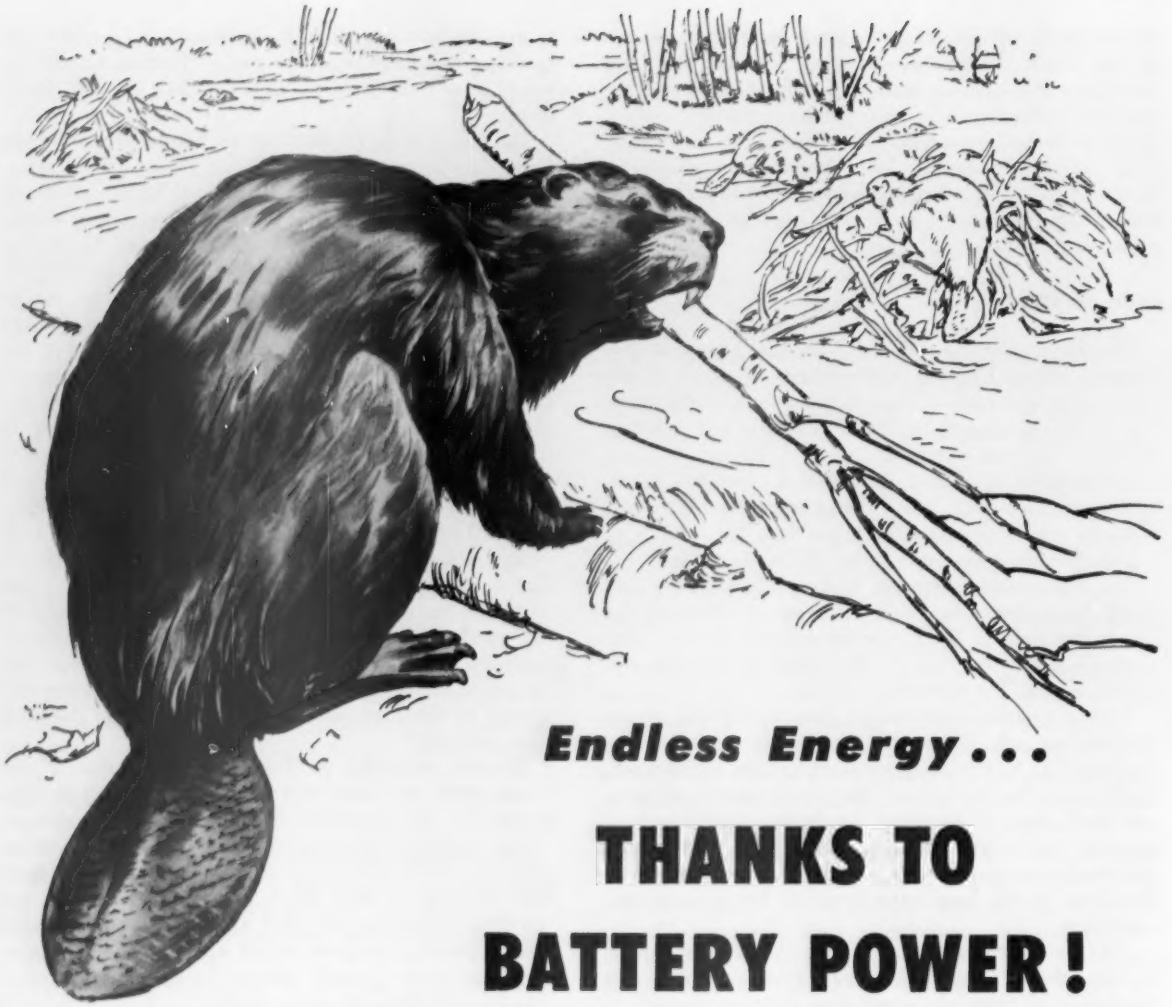
"We feel," the report also said, "that more can be accomplished in connection with packaging and unit loading if all railroads would send their representatives to manufacturers to study their operations . . . Material handling costs and problems can be further reduced or solved if we collectively continue to follow up with manufacturers."

The report of the **Committee on Stores Department Procedures,** presented by its chairman, J. C. Windbigler, traveling storekeeper, Missouri-Kansas-Texas, discussed a plan advanced some time ago, by a locomotive manufacturer, for disposition of surplus material. Under the plan, a railroad reports surplus of new materials in first-class condition to the manufacturer, who checks orders received from its customers against the reported surplus and then sends a transfer to railroad "A" to ship a portion of the surplus to railroad "B." The manufacturer bills railroad "A" 10% of the current price for the service and extends its new-material guarantee to the second purchaser. The manufacturer has indicated it will continue the plan for at least another year, and the report said it is understood another locomotive builder recently adopted such a plan.

The committee's opinion is that the plan has merit: that it is moving surplus from one railroad to another, and that the measure of its success is limited only by the number of cooperating railroads. If a majority of leading railroads subscribed to the plan, the report said, "it would materially add to its success and its use would spread to other suppliers where it would be desirable and practical."

Reports presented on June 9 included that of the **Committee on Loss and Damage Prevention,** presented by its chairman, S. A. Furlong, storekeeper, Union Pacific. The report emphasized the "paramount importance" of educating stores department personnel how properly to stow, block and handle materials and supplies to prevent loss and damage. It recommended that a training program be set up which will educate the "man on the ground" who is responsible for physical handling of materials and supplies.

RAILROAD COMMUNICATIONS PERSONNEL from all over the United States attended a recent communications "school" conducted by the Radio Corporation of America. Highlights were a tour of RCA research laboratories at Princeton, N.J. (above), and a visit to two microwave installations, one run by the Western Union Company at Nehasic, N.J., and the other operated by the New Jersey Turnpike Authority at New Brunswick.



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First Quarter Purchases

Commitments to purchase locomotives and cars aggregate $66,559,000 in first three months of 1954, down from $154,410,000 in comparable period last year

Railroad purchases of all types of materials, including commitments to buy locomotives and cars, amounted to $492,223,000 in the first three months of 1954, compared with $616,766,000 in the first 1953 quarter, as shown in the accompanying table.

For all categories of material except rail, purchases were lower than in 1953. Commitments to purchase rolling stock totaled $66,559,000 in the first three months of the current year, compared with $154,410,000 in the like 1953 period. Purchases in March 1954 of various types of material are compared in additional tables (see facing page) with purchases in the same month of other years.

1954 RAILWAY PURCHASES*

	March (000)	Three Months Totals 1954 (000)	Three Months Totals 1953 (000)
Equipment**	$ 3,842	$ 66,559	$154,410
Rail	13,895	36,018	27,907
Crossties	7,333	20,807	21,373
Other Material	86,476	260,042	278,997
Total from Manufacturers	$111,546	$383,426	$482,687
Fuel	36,039	108,797	134,079
Grand Total	$147,585	$492,223	$616 766

* Subject to revision
** Amount placed on order

Briefly . . .

. . . With completion of its seventh year of service, the Union Pacific's agricultural improvement car has had a total of 110,772 visitors. Working in the 11-state UP territory, the car offers auditorium facilities for programs arranged by the railroad's agricultural agents—often in cooperation with colleges—based upon the needs of each community or state. New crops and new farming techniques are frequent program topics. Joe W. Jarvis, supervisor agricultural development, reports that, in the seven-year period, the car has offered programs at 673 communities, with an average attendance per stop of 165. The car will return to service early this summer.

• PURCHASES •

March* Purchases of Manufactured Goods (Excl. Equip. & Fuel)

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$117,300	— 8
1949	114,187	— 6
1950	87,400	+23
1951	140,638	—23
1952	117,777	— 9
1953	118,654	— 9
1954	107,704	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$106,307	+ 1
Apr. '53	117,270	— 8
July '53	121,852	—12
Oct. '53	121,300	—11
Jan. '54	109,393	— 2
Feb. '54	99,770	+ 8
Mar. '54	107,704	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$319,241	— 1
1949	329,488	— 4
1950	233,092	+36
1951	385,123	—18
1952	339,789	— 7
1953	328,277	— 3
1954	316,867	

March* Purchases of Crossties

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$ 5,868	+25
1949	7,951	— 8
1950	4,717	+55
1951	6,916	+ 6
1952	10,177	—28
1953	7,851	— 7
1954	7,333	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$ 7,142	+ 3
Apr. '53	8,115	—10
July '53	8,663	—15
Oct. '53	8,100	— 9
Jan. '54	7,012	+ 5
Feb. '54	6,462	+13
Mar. '54	7,333	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$ 16,134	+29
1949	22,170	— 6
1950	12,107	+71
1951	18,382	+14
1952	26,282	—21
1953	21,373	— 3
1954	20,807	

March* Purchases of Fuel

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$ 68,932	—48
1949	58,007	—38
1950	57,166	—37
1951	58,490	—38
1952	53,237	—32
1953	43,316	—17
1954	36,039	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$ 48,025	—25
Apr. '53	41,468	—13
July '53	41,293	—13
Oct. '53	43,209	—17
Jan. '54	38,052	— 5
Feb. '54	34,706	+ 4
Mar. '54	36,039	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$212,585	—49
1949	181,151	—40
1950	139,323	—22
1951	175,189	—38
1952	159,956	—32
1953	134,079	—19
1954	108,797	

March* Purchases of Rail

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$ 8,822	+58
1949	10,328	+35
1950	7,704	+80
1951	8,320	+67
1952	7,974	+74
1953	10,380	+34
1954	13,895	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$ 9,816	+42
Apr. '53	8,927	+56
July '53	8,725	+59
Oct. '53	10,160	+37
Jan. '54	11,440	+21
Feb. '54	10,683	+30
Mar. '54	13,895	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$ 24,722	+46
1949	26,426	+36
1950	23,023	+56
1951	23,707	+52
1952	23,325	+54
1953	27,907	+29
1954	36,018	

March* Purchases of Other Material

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$102,610	—16
1949	95,908	—10
1950	74,979	+15
1951	125,402	—31
1952	99,626	—13
1953	100,423	—14
1954	86,476	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$ 89,349	— 3
Apr. '53	100,228	—14
July '53	104,464	—17
Oct. '53	103,040	—16
Jan. '54	90,941	— 5
Feb. '54	82,625	+ 5
Mar. '54	86,476	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$278,385	— 7
1949	280,892	— 7
1950	197,962	+31
1951	343,034	—24
1952	290,182	—10
1953	278,997	— 7
1954	260,042	

March* Total Purchases (Excl. Equip.)

Year	March '54 Compared to Other Marches (000) Amt.	% Change
1948	$186,232	—23
1949	172,194	—17
1950	144,566	— 1
1951	199,128	—28
1952	171,014	—16
1953	161,970	—11
1954	143,743	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. '53	$154,332	— 7
Apr. '53	158,738	— 9
July '53	163,145	—12
Oct. '53	164,509	—13
Jan. '54	147,445	— 3
Feb. '54	134,476	+ 7
Mar. '54	143,743	

Year	Three Months Totals '54 And Other Years (000) Amt.	% Change
1948	$531,826	—20
1949	510,639	—17
1950	372,415	+14
1951	560,312	—24
1952	499,745	—15
1953	462,356	— 8
1954	425,664	

• INVENTORIES •

March* Inventories of Rail

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$ 37,341	+68
1949	39,054	+61
1950	40,594	+55
1951	43,757	+44
1952	48,289	+30
1953	42,395	+48
1954	62,833	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$ 35,476	+77
Apr. 1, '53	43,102	+46
July 1, '53	41,608	+51
Oct. 1, '53	43,544	+44
Jan. 1, '54	51,932	+21
Feb. 1, '54	59,788	+ 5
Mar. 1, '54	62,833	

March* Inventories of Other Material

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$577,078	+ 6
1949	636,700	— 4
1950	525,771	+17
1951	567,592	+ 8
1952	695,614	—12
1953	625,576	— 2
1954	612,879	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$624,671	— 2
Apr. 1, '53	629,952	— 3
July 1, '53	621,924	— 1
Oct. 1, '53	613,037	——
Jan. 1, '54	610,776	——
Feb. 1, '54	611,588	——
Mar. 1, '54	612,879	

March* Inventories of Fuel

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$ 65,071	—33
1949	88,647	—50
1950	39,369	+12
1951	63,351	—31
1952	59,540	—26
1953	48,349	— 9
1954	43,912	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$ 50,354	—13
Apr. 1, '53	47,207	— 7
July 1, '53	47,009	— 7
Oct. 1, '53	49,243	—11
Jan. 1, '54	46,987	— 7
Feb. 1, '54	44,919	— 2
Mar. 1, '54	43,912	

* Subject to revision

March* Inventories of Crossties

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$ 98,843	+22
1949	98,833	+22
1950	105,934	+14
1951	91,400	+32
1952	108,124	+12
1953	116,024	+ 4
1954	120,930	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$110,135	+10
Apr. 1, '53	115,998	+ 4
July 1, '53	106,017	+14
Oct. 1, '53	110,474	+ 9
Jan. 1, '54	111,742	+ 8
Feb. 1, '54	117,256	+ 3
Mar. 1, '54	120,930	

March* Inventories of Scrap

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$ 16,409	+24
1949	18,532	+10
1950	12,922	+58
1951	19,887	+ 2
1952	19,332	+ 5
1953	17,923	+14
1954	20,371	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$ 19,194	+ 6
Apr. 1, '53	17,208	+18
July 1, '53	16,698	+22
Oct. 1, '53	17,535	+16
Jan. 1, '54	18,451	+10
Feb. 1, '54	19,780	+ 3
Mar. 1, '54	20,371	

March* Total Inventories†

Year	March '54 Compared to Other Marches (000) Amt.	% Change
Mar. 1, 1948	$794,742	+ 8
1949	881,766	— 2
1950	724,590	+19
1951	785,987	+10
1952	930,899	— 8
1953	850,267	+ 1
1954	860,925	

Month	March '54 Compared to Other Months '53 and '54 (000) Amt.	% Change
Jan. 1, '53	$839,830	+ 3
Apr. 1, '53	853,467	+ 1
July 1, '53	833,256	+ 3
Oct. 1, '53	834,033	+ 3
Jan. 1, '54	839,888	+ 3
Feb. 1, '54	853,331	+ 1
Mar. 1, '54	860,925	

† All total inventory figures taken from I.C.C. statement M-125 for the month indicated

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225 HP. Loco T 4 M 525

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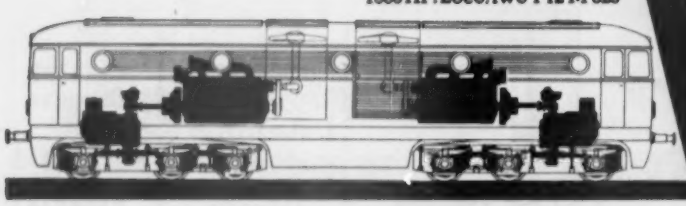

LOCOMOTIVE-ENGINE T 4 M 525

KLÖCKNER-HUMBOLDT-DEUTZ AG · KÖLN
GERMANY

Supply Trade

(Continued from page 16)
named district sales manager of brake shoes, and **John L. Goheen,** district manager for commercial research on the West Coast, has been appointed district sales manager of castings. Messrs. Hulme and Goheen will be located at San Francisco.

C. Allen Koenig, who has been sales manager of the door control division of the **National Pneumatic Company,** specializing for many years in sales to railroads and to car and bus builders, has announced that he is no longer associated with that company.

OBITUARY

Gerald K. Swallow, 58, sales manager, Railroad Products division, Continental Diamond Fiber Company, died May 16.

Erling Wessel, vice-president of the Beall Tool division of Hubbard & Co., East Alton, Ill., died May 18.

Securities

Dividends Declared

ALLEGHENY & WESTERN.—$3, semiannual, payable July 1 to holders of record June 21.

NASHVILLE & DECATUR.—7½% guaranteed, 93¾¢, semiannual, payable July 1 to holders of record June 19.

NORWICH & WORCESTER.—8% preferred, $2, quarterly, payable July 1 to holders of record June 15.

SEABOARD AIR LINE.—increased, $1, payable June 25 to holders of record June 11.

UNITED NEW JERSEY RR & CANAL.—$2.50, quarterly, payable July 10 to holders of record June 21.

Security Price Averages

	June 8	Prev. Week	Last Year
Average price of 20 representative railway stocks	64.07	66.45	61.15
Average price of 20 representative railway bonds	94.48	94.71	88.50

Applications

CHICAGO, BURLINGTON & QUINCY.—To assume liability for $7,350,000 of equipment trust certificates to finance in part equipment listed below, which is expected to cost a total of $9,278,000.

	Description and Builder	Estimated Unit Cost
20	1,750-hp diesel-electric locomotives (Electro-Motive Division, General Motors Corporation)	$180,000
6	2,400-hp diesel-electric locomotives (General Motors)	255,500
200	40-ft refrigerator cars (Pacific Car & Foundry Co.)	10,500
100	covered hopper cars (General American Transportation Corporation)	10,250
2	all stainless steel dome passenger coaches (Budd Company)	235,700
2	all stainless steel dome sleeping cars (Budd)	274,300

The certificates, dated July 1, would mature in 30 semiannual installments of $245,000 each, beginning January 1, 1955. They would be sold by competitive bids with the interest rate set by such bids.

DONORA SOUTHERN.—To issue notes in the amount of $150,000 to its parent company, United States Steel Corporation. The proceeds would be added to the road's working capital. The notes, payable on demand, would bear interest at 4%, if earned.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—To assume liability for $1,950,000 of equipment trust certificates, series B, to finance in part construction of 400 50-ton box cars in its own shops. The estimated total cost of the cars is $2,440,000, the estimated unit cost being $6,100. The certificates would mature in 30 semiannual installments of $65,000 each, beginning February 1, 1955. They would be sold by competitive bids with the interest rate set by such bids.

Authorizations

BANGOR & AROOSTOOK.—To assume liability for $975,000 of equipment trust certificates to finance in part five diesel-electric locomotives and two sleeping cars costing an estimated $1,235,000 (*Railway Age*, May 17, page 140). Division 4 approved sale of the certificates, with a 2⅞% interest rate, for 99.386—the bid of R. W. Pressprich & Co., which will make the annual cost of the proceeds to the road approximately 2.99%. The certificates, dated June 1, will mature in 15 annual installments of $65,000 each, beginning June 1, 1955. They were reoffered to the public at prices yielding from 1.6 to 3.05%, according to maturity.

EVERETT.—To issue and sell at par ($25) 2,000 shares of common stock. The proceeds will be used to acquire 4.4 miles of line in the vicinity of Everett, Pa., which was formerly operated by the Huntington & Broad Top Mountain (*Railway Age*, March 22, page 16).

"STANDARD"
Gondola Car
FOR INLAND STEEL CO.

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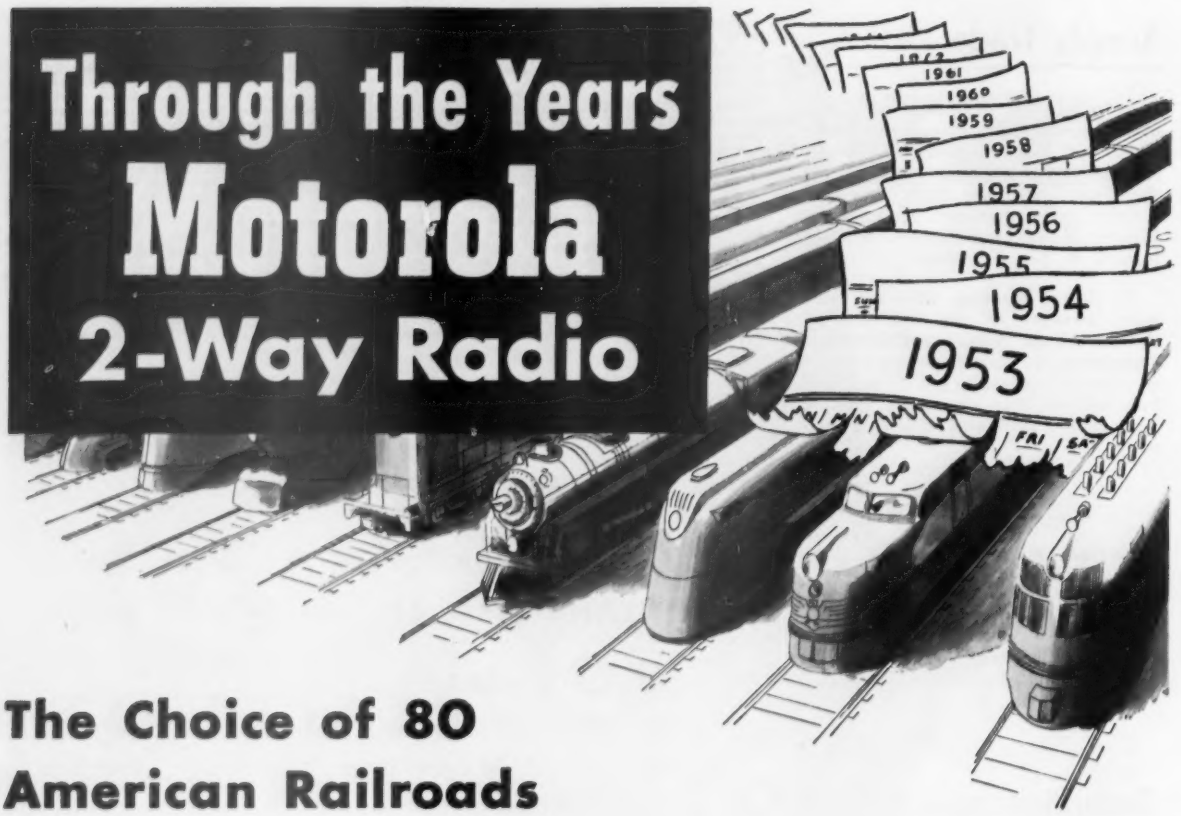

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Portables for	Car Checking Car Inspection
Automobile Sets for	Trainmaster Yardmaster Superintendent

Specials for Maintenance-of-Way Operations
Microwave—Supervisory Control

NATIONAL PARTS SERVICE

Railway Officers

CANADIAN NATIONAL.—D. J. Scott, division freight agent at Port Arthur, Ont., has been transferred to Saskatoon, Sask., succeeding **H. S. Granger,** promoted to general freight agent at Winnipeg. **G. W. Cox,** district freight agent at Winnipeg, succeeds Mr. Scott at Port Arthur. **F. F. Holman,** freight traffic representative at Regina, Sask., has been named district freight and passenger agent at Vernon, B.C., succeeding **W. A. V. Brydone-Jack,** who replaces Mr. Cox at Winnipeg.

John H. Stevenson, transportation assistant at Montreal, has been appointed chief of transportation, succeeding **Paul H. Fox,** who has retired

John H. Stevenson

under the pension rules of the company, after 47 years of service. **John W. Demcoe,** superintendent at Montreal, has been named operation assistant.

H. V. Hardman has been appointed general mail and baggage agent for the Atlantic region at Moncton, N.B., succeeding **W. L. Lowther,** who has retired after nearly 48 years' service.

CANADIAN PACIFIC.—J. C. M. Machan has been appointed manager, real estate department, Montreal, replacing **J. E. Paradis,** who has been assigned to other duties.

F. L. Moorey has been appointed assistant superintendent of the Smiths Falls (Ont.) division, succeeding **E. J. Hase,** resigned.

Gilbert E. Warner, auditor of payrolls at Montreal, has retired on pension after more than 42 years of service. He has been succeeded by **Clifford Smallwood,** assistant to comptroller, who has been replaced by **John H. Rice,** assistant general auditor. **William A. Murray,** assistant auditor of disbursements, succeeds Mr. Rice. **Jack McL. Marshall,** staff assistant in office of vice-president and comptroller, replaces Mr. Murray.

Dr. J. A. Corrigan has been appointed district medical officer at Montreal, succeeding **Dr. G. Earle Wright.**

CHICAGO & EASTERN ILLINOIS.—Louis J. Ahlering, purchasing agent since 1935, has been elected vice-president, at Chicago.

CHICAGO & EASTERN ILLINOIS.—The traffic department office at Portland, Ore., has been moved to Room 1402, American Bank building, 621 S. W. Morrison street.

A. W. Schroeder, general manager at Chicago, has been appointed vice-president there. Mr. Schroeder's photo and a sketch of his railway career were published in *Railway Age* February 16, 1953, page 58.

Guy H. Van Swearingen, special representative to president, has been named assistant to president at Chicago, and will be in charge of the road's newly formed motor vehicle operations department, which has been established "to increase the efficiency of [C&EI] services to shippers." Having been engaged in piggyback operation for more than six years, the railroad also operates motor vehicles to destination points on its line in Illinois.

H. S. Vierling, assistant superintendent at Danville, Ill., has been advanced to superintendent transportation at Chicago, succeeding **W. G. Hofmann,** promoted to assistant chief personnel officer. Mr. Vierling's successor is **J. T. Warren,** trainmaster at Evansville, Ind.

Named as engineer of signals and communication is **W. N. Donahue,** signal engineer at Danville, who fills the vacancy created by the recent death of **G. P. Neal.**

Harry C. Vom Berg, assistant comptroller, has been advanced to comptroller at Chicago, to succeed **Carl F. Schwarz,** who retired May 31, after more than 45 years of service. **H. R. Nelson,** chief clerk to comptroller, has been named to replace Mr. Vom Berg.

Glen E. Morgan, director of personnel at Chicago, has been appointed chief personnel officer there, succeeding **Ray Hill,** who retired May 31 as vice-president of personnel. A photograph of Mr. Morgan was published in *Railway Age* March 23, 1953, page 135. **F. J. Zobac,** manager of personnel, becomes assistant chief personnel officer, while **John Plant,** superintendent of personnel, has been appointed personnel officer.

Mr. Vom Berg joined the C&EI in 1910 as stock clerk at Danville, Ill. After holding a number of other clerical positions, he was appointed chief clerk to comptroller in 1944, and in 1948 was elected assistant comptroller.

CONSOLIDATED OF CUBA — CUBA NORTHERN — CUBA. — Jorge E. de Cubas y del Marmol has been appointed legal counsel at Havana.

COTTON BELT.—Offices of general auditor and auditor disbursements have been moved from St. Louis to Tyler, Tex. The auditor freight accounts will remain in St. Louis for another three to four months, when that office also will be moved to Tyler. Overcharge claims should be directed to auditor freight accounts. **W. H. Meyer** has been appointed assistant to general auditor, succeeding **A. E. DuRocher,** who has been appointed auditor disbursements. **G. J. Fuchs** has been named auditor miscellaneous accounts at Tyler.

John W. Murphy, general solicitor, has been appointed general counsel at St. Louis. Named to succeed him is **Clyde Fiddes,** general attorney

(*Continued on page 82*)

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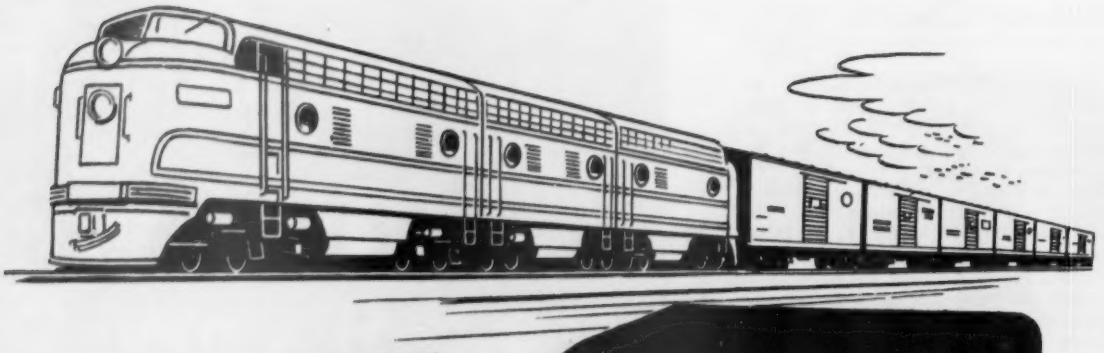

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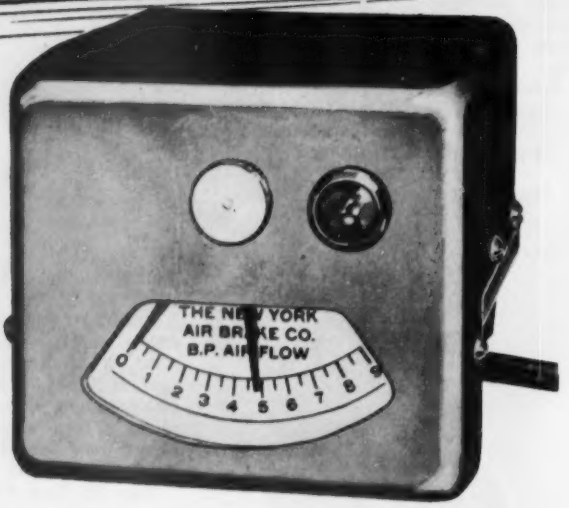

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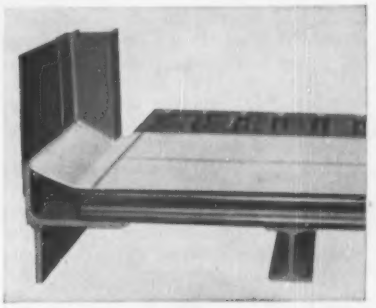

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NATIONAL STEEL CORPORATION

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54-SF-7

COTTON BELT.—W. H. Hudson, Jr., chief engineer (above), has been appointed assistant general manager at Tyler, Tex. Named to succeed Mr. Hudson is J. M. Lowry (below), assistant chief engineer there.

(Continued from page 79)

and commerce counsel, whose headquarters will be at Tyler, Tex. **Roy P. Cosper,** general attorney at St. Louis, has been promoted to assistant to general counsel at Tyler. Mr. Murphy began his railway career with the Burlington in 1916 and became assistant general attorney before joining the Frisco in that capacity in 1925. He entered Cotton Belt service in 1939 as assistant general attorney, becoming general solicitor in 1947.

A. C. Bagby, general clerk in the executive department at St. Louis, has been named industrial agent at Pine Bluff, Ark.

DELAWARE & HUDSON.—H. L. Bender has been appointed assistant freight claim agent at Albany.

DURHAM & SOUTHERN. — Robert M. Barnett, assistant freight traffic manager of the Seaboard at Savannah, has resigned from that position to become president of the D&S.

FRISCO.—J. Dalton, assistant to general manager at Springfield, Mo., has been appointed assistant general superintendent transportation at that point. Named as assistants to general manager there are **V. B. Gleaves,** superintendent stations, and **H. B. Stierwalt,** assistant chief clerk in the

J. Dalton

C. H. Negus

general manager's office. Mr. Gleaves' successor is **C. H. Negus,** assistant superintendent stations, who in turn has been replaced by **A. R. Lindeman,** supervisor stations. Named as car service supervisors are: **L. W. Poncik,** general warehouse foreman at Kansas City, Mo.; **R. J. Stroup,** assistant chief yard clerk at St. Louis; **G. R. Clinkenbeard,** secretary to assistant general manager, and **L. E. Reddick, Jr.,** secretary to superintendent terminals at Springfield. They will be located at Kansas City, St. Louis, Tulsa, and Memphis, respectively.

FRISCO.—Herbert E. Martin, fuel agent, who has been promoted to the newly created position of purchasing agent at St. Louis.

NORTHWESTERN PACIFIC. — L. E. Hoyt, who has been named superintendent at San Rafael, Cal. *(Railway Age,* March 15).

R. A. Rorie, Jr., and **W. D. Smith** have been appointed trainmasters-road foremen of equipment at Thayer, Mo., and Enid, Okla., respectively.

MIDLAND OF MANITOBA. — J. M. Kneeshaw has been appointed general superintendent, auditor, and general freight and passenger agent at Winnipeg, succeeding **J. L. Knight,** who has retired after more than 42 years of service.

MONON.—Joseph S. Chicoine, assistant superintendent dining car service at Chicago, has been appointed superintendent dining car service, to succeed **Albert J. Ferrick,** who died April 9.

ROCK ISLAND.—G. J. Johler, assistant superintendent communications at Chicago, has retired after 52 years of service, and has been succeeded by **E. L. Hite,** telegraph traffic supervisor, whose title will be assistant superintendent communications-traffic. Named as assistant superintendent communications-engineering is **C. J. Nelson,** radio-communication engineer.

SOUTHERN.—James C. Naughten, assistant general auditor, has been appointed general auditor, succeeding **William H. Luckett,** who retired April 1, after more than 54 years of service. **John B. Welch,** general accountant, has been named auditor tax accounts; **Lloyd T. Cox,** assistant auditor, has been promoted to auditor, and **J. Julian Davis** has been ap-

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pointed assistant auditor, all at Washington, D.C. **John D. Seay,** auditor at Atlanta, has been named general auditor of revenues there.

John W. Kidd, assistant superintendent at Knoxville, Tenn., has been appointed assistant chief engineer, maintenance of way and structures,

James C. Naughten

Lloyd T. Cox

Eastern lines, at Charlotte, N.C., succeeding **G. Page Asbury,** who has retired after more than 40 years of service. **M. French Akers,** division engineer at Knoxville, has been appointed assistant superintendent, succeeding Mr. Kidd.

TOLEDO, PEORIA & WESTERN.—As *Railway Age* reported March 22, **Mallory J. Craig** and **G. F. Miller** have been named traffic managers at Keokuk, Iowa, and Philadelphia, respectively. Mr. Craig joined the TP&W in 1936 as yard clerk. He was promoted to assistant chief yard clerk in 1947 and general agent in 1951. Mr. Miller began his railway career with the Frisco in 1941. Joining the TP&W in 1947 as general agent at New York, he was transferred to Philadelphia in 1950.

Randle H. Egbert, engineer — maintenance, has been promoted to chief engineer at Peoria, Ill., while **Robert J. Dunn** succeeds him. **Milton L. Spangler** becomes general roadmaster there.

Named as consultant, to report only to the president, is **Harland H. Best,** assistant to president.

Mr. Egbert, a graduate of Missouri

Randle H. Egbert

School of Mines, joined the TP&W in 1948 as assistant engineer. He was named engineer—maintenance in 1953.

UNION PACIFIC. — Donald R. Alexander, general freight and passenger agent at Kansas City, Mo., has been advanced to traffic manager there. Mr. Alexander began his railway career as a general clerk for the

Donald R. Alexander

Santa Fe in 1915 before joining the UP's clerical staff in 1916. After holding a number of clerical positions, he was named freight traffic agent in 1924. He was promoted to general agent in 1941, and general freight and passenger agent in 1944.

Miss Marjorie Harker has been appointed women's travel consultant at Omaha, to succeed **Miss Mary Buchanan,** resigned.

Raymond J. Murphy, assistant general storekeeper at Denver, has been advanced to general storekeeper at Omaha, succeeding **J. L. Irish,** retired. **Harry S. Smith,** materials handling engineer, has been named assistant general storekeeper at Omaha to replace **A. R. Mullens,** also retired, while **Earl M. Hickox** likewise becomes assistant general storekeeper

Raymond J. Murphy

at Omaha. Named as division storekeeper at Los Angeles is **Dewey L. Snelson.**

Frank E. Haasch general station supervisor at Omaha, has retired.

L. C. Chamberlin has been appointed auditor freight accounts at Omaha, succeeding the late **T. J. Cummins.**

OBITUARY

Walter E. Cooper, retired assistant to passenger traffic manager of the **Milwaukee,** died recently at Englewood Hospital, Chicago.

Harold Lawrence Denton, 66, general superintendent of police, **Baltimore & Ohio,** at Baltimore, died June 7 in Union Memorial Hospital, following a brief illness.

Edward M. Durham, Jr., former chief executive officer of the **Rock Island,** died June 6 of a heart attack at his home in Ladue, Mo.

Edward Flynn, retired executive vice-president of the **Burlington,** died June 5 at his home in Chicago.

Sidney C. Murray, retired general counsel of the **New York Central** at Chicago, died June 1 at St. Luke's Hospital in that city.

William F. Kiesel, Jr., 87, retired mechanical engineer of the **Pennsylvania,** died at Bethlehem, Pa., May 24. Mr. Kiesel, whose 48-year career with the PRR covered the period of original development of steel freight and passenger cars, was influential in working out basic designs for such cars, and also in development of the steam locomotive types which were standard on the Pennsylvania for many years prior to introduction of diesel locomotives.

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STYLE 22 is an extra heavy duty automatic stand recommended for turnouts where switches are apt to be run through. Stand can be hand thrown as well as thrown automatically. When stand is trailed, the switch points are partly opened by the wheel flanges and throw to the opposite position is automatically completed by the stand. During automatic operation the target lamp rotates to indicate position of the switch points while hand lever remains stationary. Separate padlock pedestals will be furnished when specified for application over the integral lever rests if padlocking of hand lever is necessary.

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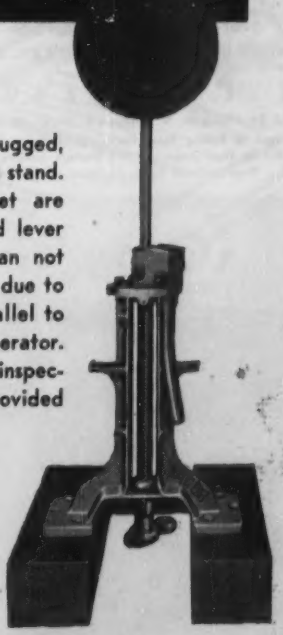
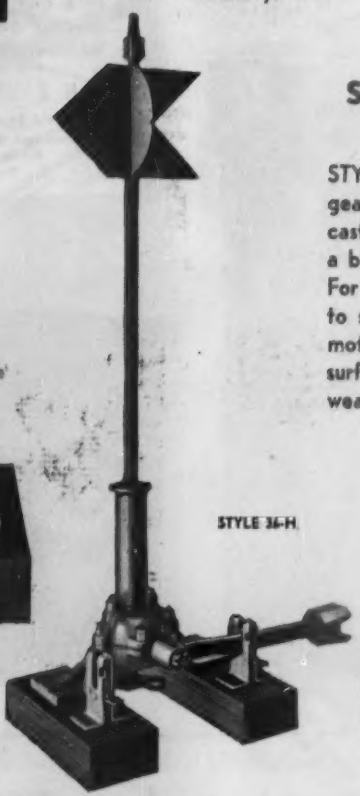
STYLE 112-D is an extremely rugged, column type of MAIN LINE switch stand. Body casting and handle bracket are malleable iron. Spindle and hand lever are forged steel. Hand lever can not become disengaged from bracket due to its novel design. It is thrown parallel to track, thus safeguarding the operator. All parts are easily accessible to inspection and double protection is provided against dropping of spindle.





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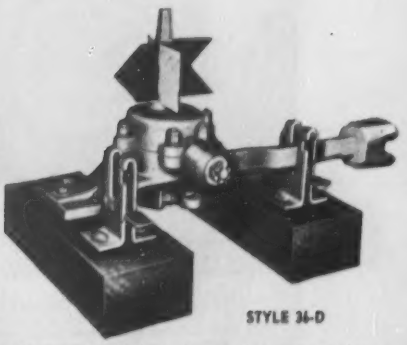
STYLES 36-D and 36-H are parallel throw gearless stands. Operating parts and base castings are interchangeable and provide a basic assembly for high and low stands. For MAIN LINE or YARD use. No pins to shear. Long life and minimum of lost motion assured by the extra large bearing surfaces of the few heat treated forged wearing parts.



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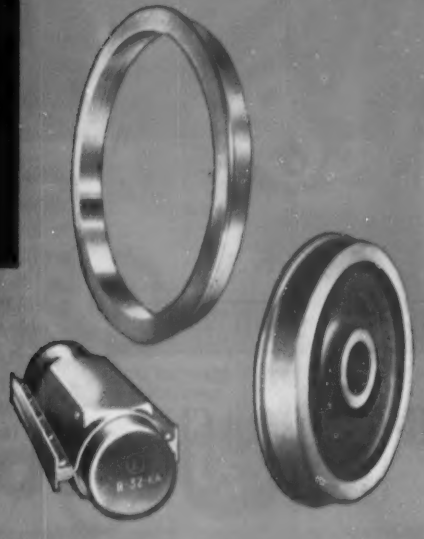

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It is in such country that track takes the toughest beating under every extreme of weather. Here track must withstand constant expansion and contraction, and the tremendous stress and shock of fast passenger trains and heavy freights.

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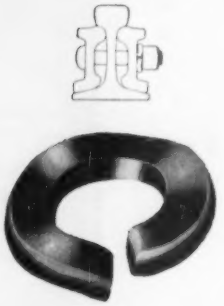

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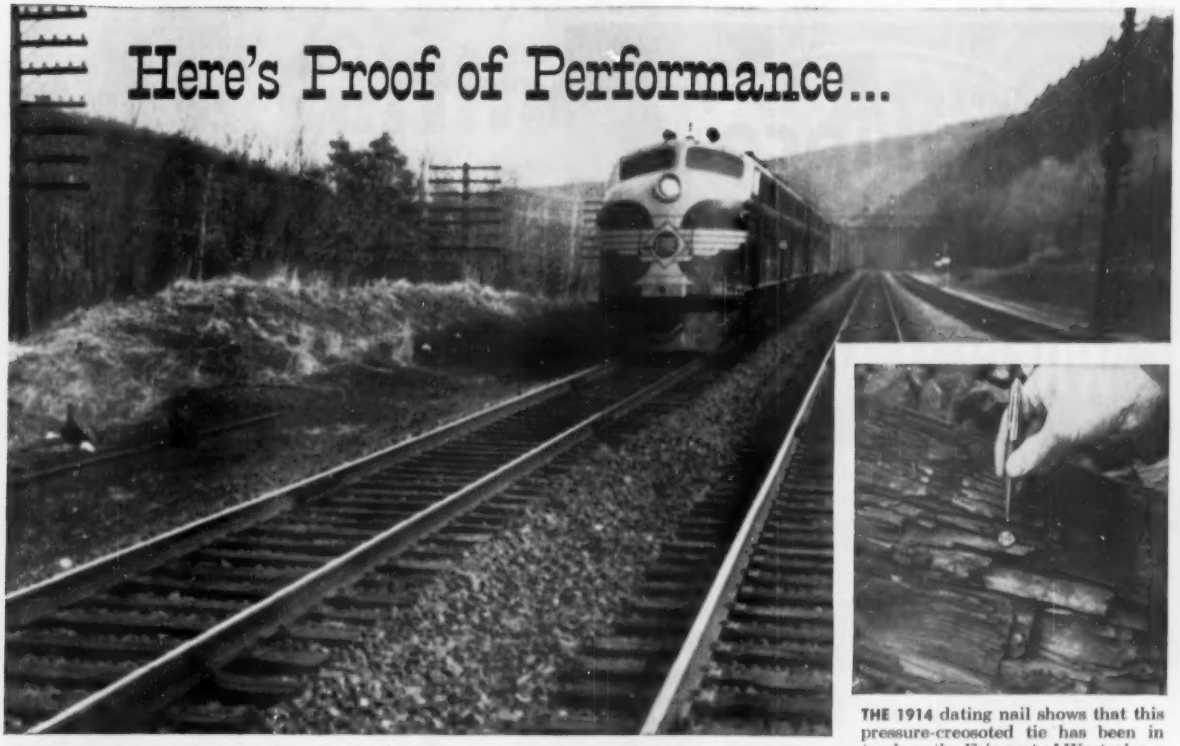

WESTBOUND Erie train at a point east of Lackawaxen, Pa. Erie trains supported by pressure-creosoted ties in 1953 carried nearly 27 billion gross ton miles of freight and equipment plus nearly 10 million passengers.

THE 1914 dating nail shows that this pressure-creosoted tie has been in track on the Erie east of Westcolang, Pa., for 40 years.

Erie Railroad has used *pressure-creosoted* ties since 1914

• Forty years ago the Erie Railroad decided to use pressure-creosoted ties, and the decision has proved to be a profitable one. Today, there are 13,520,283 pressure-creosoted ties in track on the Erie, and their life expectancy is 30 years on main line straight track and 25 years on curves.

Blair Blowers, Chief Engineer, estimates that it would cost the railroad two to three times as much to use untreated ties as it does to use pressure-creosoted ones. "You just can't compare pressure-creosoted ties with untreated wood for long life, dependability, and economy," he adds.

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BLAIR BLOWERS, Chief Engineer of the Erie Railroad.

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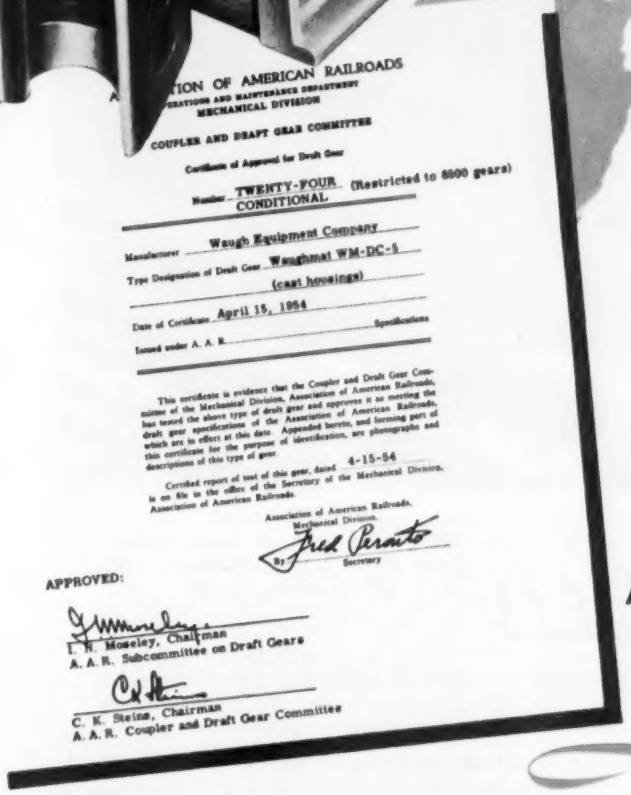

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Certificate of Approval for Draft Gear

Number TWENTY-FOUR CONDITIONAL (Restricted to 6000 gears)

Manufacturer Waugh Equipment Company

Type Designation of Draft Gear Waughmat WM-DC-1 (cast housings)

Date of Certificate April 15, 1954

Issued under A. A. R. ... Specifications

This certificate is evidence that the Coupler and Draft Gear Committee of the Mechanical Division, Association of American Railroads, has tested the above type of draft gear and approves it as meeting the draft gear specifications of the Association of American Railroads, which are in effect at this date. Appended hereto, and forming part of this certificate for the purpose of identification, are photographs and descriptions of this type of gear.

Certified report of test of this gear, dated 4-15-54 is on file in the office of the Secretary of the Mechanical Division, Association of American Railroads.

Association of American Railroads,
Mechanical Division.
By Fred Peronto
Secretary

APPROVED:

T. N. Moseley, Chairman
A. A. R. Subcommittee on Draft Gears

C. K. Steins, Chairman
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ESSO XP Compound—hypoid gear lubricant
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COBLAX—traction motor gear lube
VARSOL—Stoddard Solvent
SOLVESSO—Aromatic solvent
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Esso

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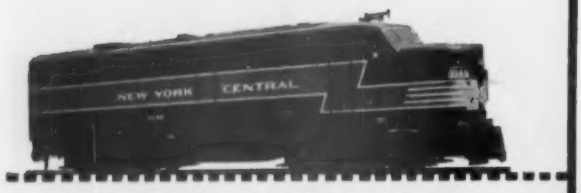
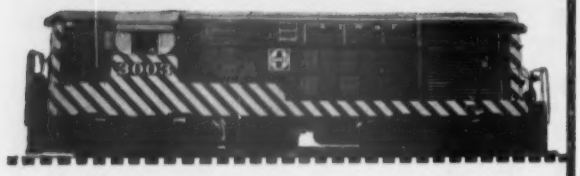
Boston, Mass.—Pelham, N. Y.—Elizabeth, N. J.—Philadelphia, Pa.—Baltimore, Md.—Richmond, Va.—Charlotte, N. C.—Columbia, S. C.—Memphis, Tenn.—New Orleans, La.

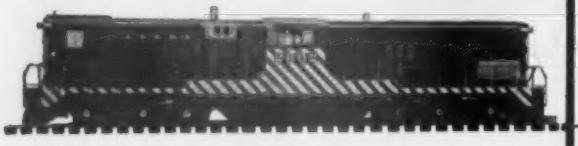
FAR-AIR*

DYNAMIC GRILLES DO DOUBLE DUTY

1. Reduce Dirt and Snow Load
2. Add Beauty to Diesel Equipment





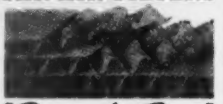


When installed over air intake filters on Diesel Electric and Gas Turbine locomotives, FAR-AIR Dynamic Grilles effectively deflect snow, dirt and other foreign particles, yet allow unimpeded entrance of air. The higher the air velocity passing the grille face, the greater the effectiveness.

Available in stainless or plain steel, FAR-AIR Dynamic Grilles add to the appearance and service life of any locomotive. This new Grille can be supplied in practically any size and for a variety of applications.

Farr engineers are always available to discuss special requirements, always glad to assist in solving difficult filtration problems. Write today for information on FAR-AIR Dynamic Grilles and other FAR-AIR railroad equipment.

FAR-AIR FILTERS



"Better by Farr"

*Trade Mark Reg.

FARR COMPANY

Manufacturing Engineers

CHICAGO · LOS ANGELES · NEW YORK

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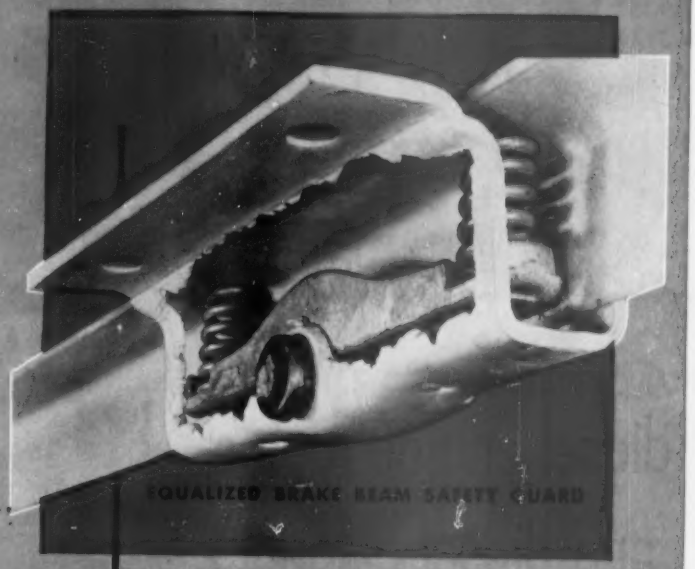


SAFETY IS WORTHLESS

HOW MUCH *IS* ABSOLUTE SAFETY WORTH?

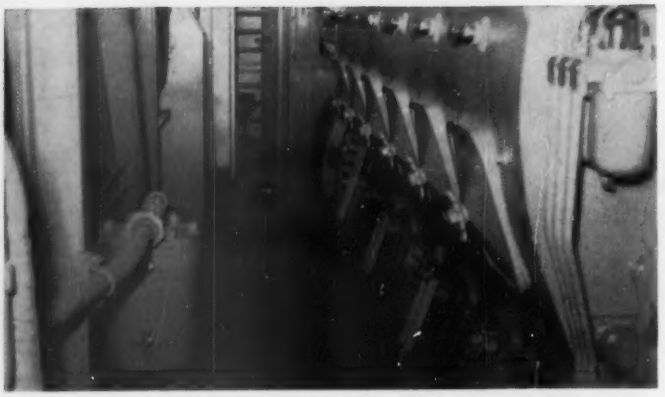
There is no such thing as "a little bit safe!" "Absolutely safe" may cost a bit more, require a bit of extra effort to apply . . . but stop for a moment and consider the cost of *not* taking that extra bit of caution!

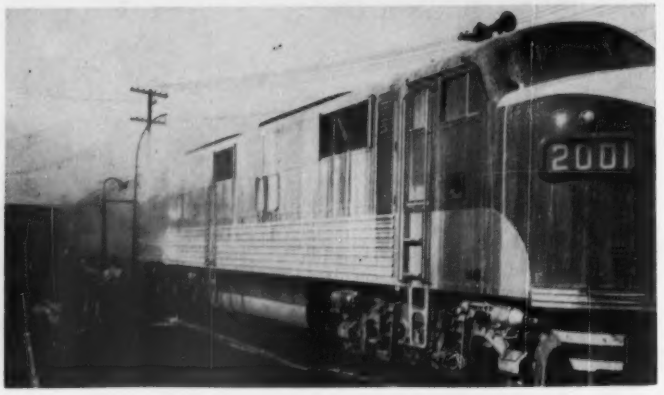
CRECO'S EQUALIZED BRAKE BEAM SAFETY GUARDS for new and existing trucks, both spring plank and spring plankless, *assure* you the *absolute* safety your road *must* demand!

CHICAGO RAILWAY EQUIPMENT CO.

C-3 332 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

fine, new **water-mixed** material cleans diesel engine rooms and diesel exteriors **quickly, safely**





OAKITE COMPOSITION No. 72 will definitely give you faster, better, safer cleaning results. What's more with this ONE cleaner you can clean diesel engine rooms and diesel exteriors. You can't help but save money with this double-purpose cleaner Oakite Composition No. 72.

Hear what satisfied users are saying about Oakite Composition No. 72:

"This material is the one we've been looking for... that can be used with water instead of fuel oil or kerosene" (Interior diesel cleaning)

"Results perfect... diesels look almost like new" (Exterior diesel cleaning)

"Have never seen the equal of this material for removing oil and grease" (Interior diesel cleaning)

FREE SERVICE REPORT GIVES DETAILS. If you are looking for a quicker, safer way to clean your diesel interiors and exteriors. If you want to save money . . . take this first big step . . . send for FREE Service Report B-2837. It gives you a complete description of Oakite Composition No. 72. Tells you how to apply it manually for interior cleaning and mechanically for exterior washing. Just drop a line to address below for your copy. No obligation.

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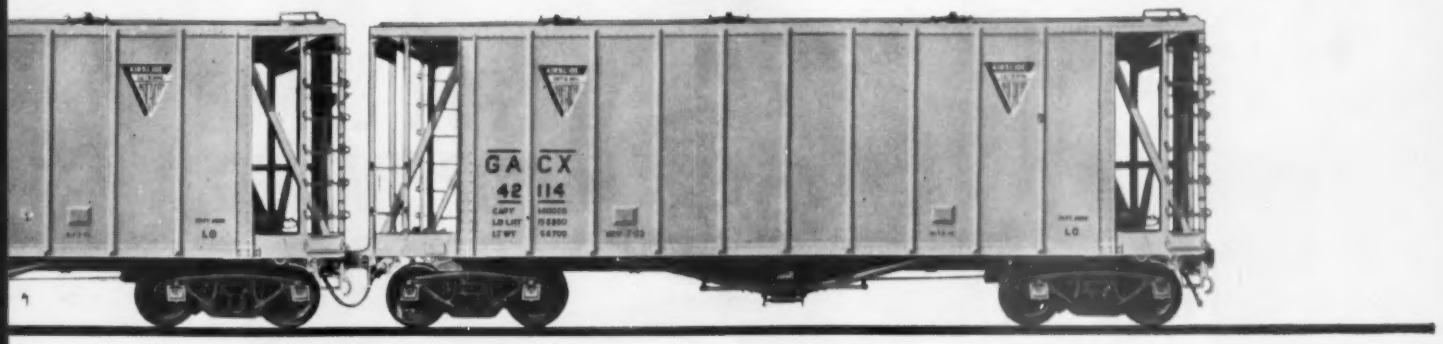
OAKITE

RAILWAY DIVISION

General American's Airslide® Car Fleet is Rolling!



NOW MANY MORE DRY, GRANULAR AND POWDERED MATERIALS CAN BE SHIPPED IN BULK

Shippers using Airslide cars have transported commodities never successfully handled in bulk before

General American's new Airslide car fleet has started operation after months of actual working tests. New cars are coming out of its shops for companies who have actually tested them—found their value. These facts were considered *before* the cars were leased:

1. Airslide car shipping costs less.

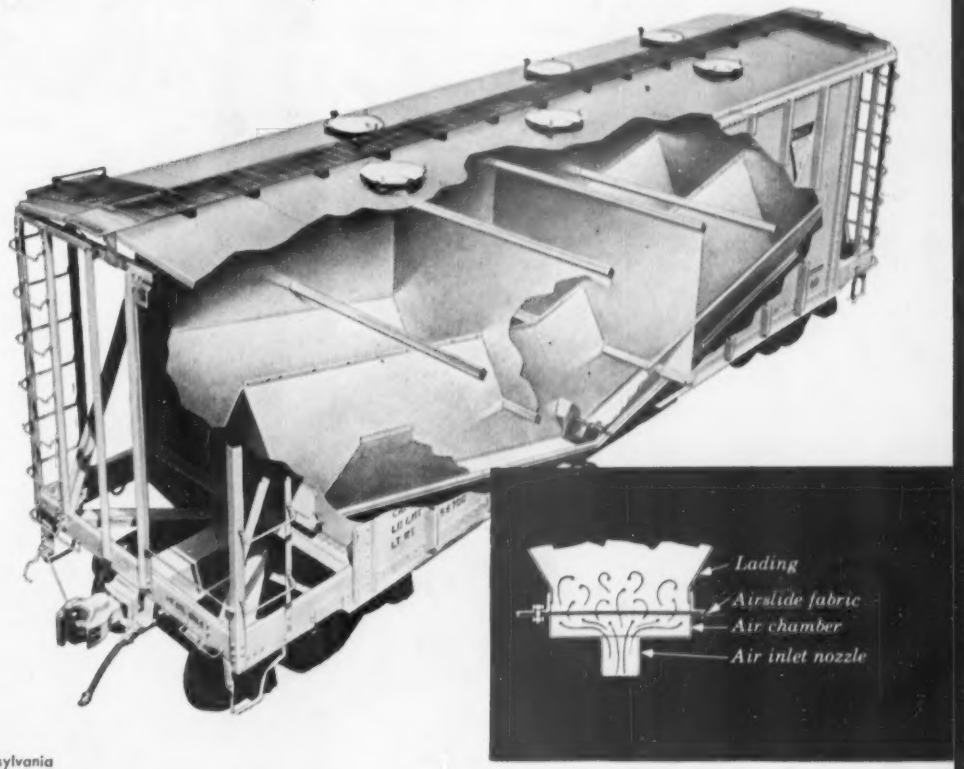
2. High or low density materials can be successfully loaded, carried and unloaded.

3. The expense of individual, small-unit containers can be eliminated.

4. Airslide cars can be loaded by gravity and unloaded into any conveying system.

5. Ladings are protected against shrinkage and leakage with minimum possibility of contamination.

6. General American can service Airslide cars in its own shops throughout the country just as GATX tank cars are serviced.



AIRSLIDE, a trade mark of the Fuller Company, Catasauqua, Pennsylvania

FIND OUT ABOUT CUTTING YOUR SHIPPING COSTS

General American's engineers will work with your traffic and production engineers to see how you can get the advantages and savings of bulk shipping. Write for information.

UNLOAD INTO ANY CONVEYING SYSTEM

The Airslide in car quickly and easily "fluidizes" the lading for complete, speedy unloading. With approximately one pound of air pressure, the lading is aerated and flows quickly and evenly to the discharge points.

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GENERAL AMERICAN TRANSPORTATION CORPORATION

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Hold-Rite Retainers are easy to insert and remove, work either with or without a front plug—repay their low cost many times over for more than 160 railroads and private car lines. Two types: "Standard" and "Short." Ask for Folder No. 190.

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DIESEL ENGINE OIL SEAL

The quick, easy-to-use brush-on Diesel gasket seal. Ends leaks and seepage in a single application, even during turn-around layover. Gives permanent seal after a few hours of drying which may be further speeded by adding heat. SP-1000 prevents down-time, loss of revenue—minimizes personnel and fire hazards caused by oil-leakage. Now on more than 100 Class I railroads. Write for full information.

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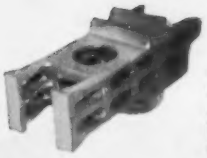
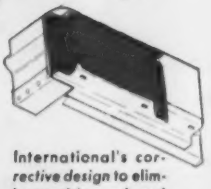


Center filler-rear draft lugs-center plate, one steel casting welded *integrally* into the bolster-center sill connections... International's *corrective design* for an *all-welded* underframe which has a history of *NO FAILURES!*



International's *corrective design* to eliminate side and end failure—an integral 3/16" W-section corner post, shorter span end side sheet and side post.

Underframe, sides and ends become an integral unit.

International's CORRECTIVE DESIGN

W. STEEL WHEELS

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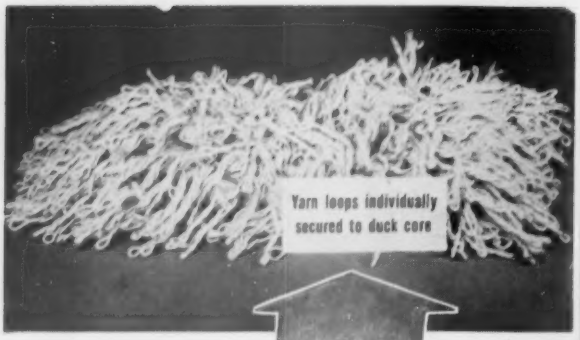
International STEEL COMPANY

RAILWAY DIVISION EVANSVILLE 7, INDIANA

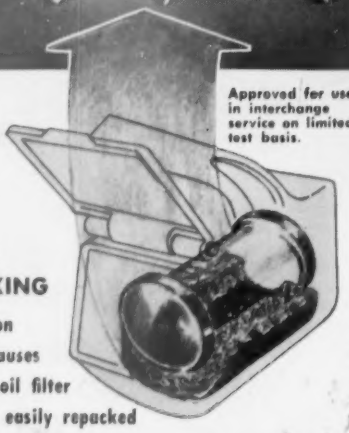
THERE'S A NEW PRECISION IN FREIGHT CAR CONSTRUCTION



New

CHENILLE ROLL JOURNAL PACKING

- improves lubrication
- reduces hot box causes
- acts as wick and oil filter
- boxes quickly and easily repacked



Approved for use in interchange service on limited test basis.

Improved lubrication with Chenille Roll packing has been shown in winter and summer tests, with increased capillarity and lower bearing temperatures. Four or five Chenille Rolls pack a journal box (depending on size), minimizing chances of guesswork and poor judgment. Repacking is performed quicker, easier, and more accurately. Withstands hard service wear and is reclaimable. Available in cotton or wool-cotton yarns.

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Our packing renovation and oil reclamation plants

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Journal Box Servicing Corp.

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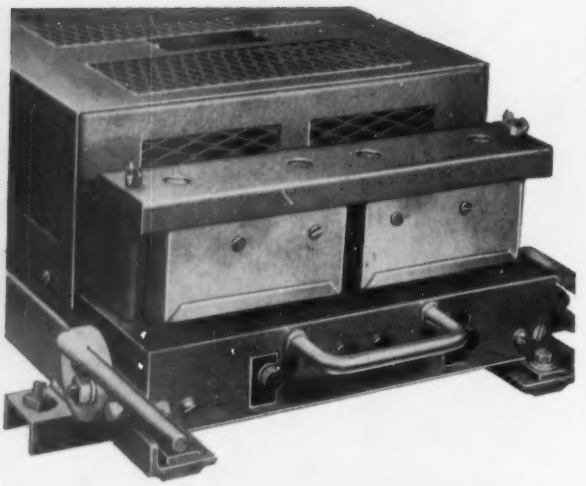
Chicago 4, Ill.	Indianapolis 20, Ind.



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on cost of initial installation

☑ **SAVES 50%**
each year on maintenance

☑ **Services itself en route**

Patented C-D dual vibrator circuit with instantaneous automatic switch-over assures uninterrupted radio communications en route.

☑ *field-tested and approved by over 50 leading railroads**

*Complete list on request.

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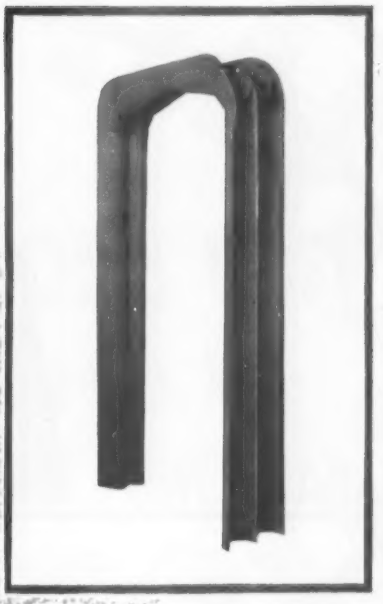

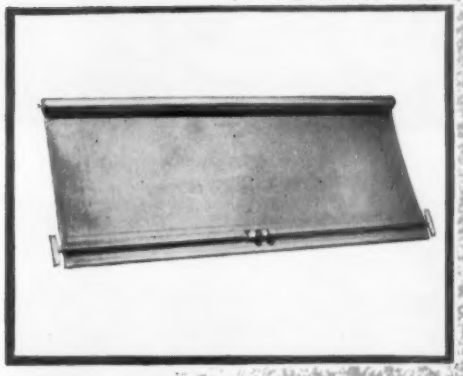

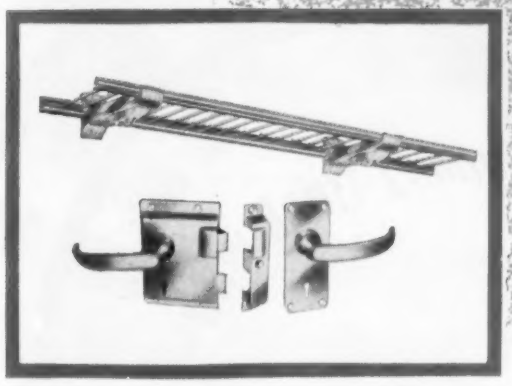

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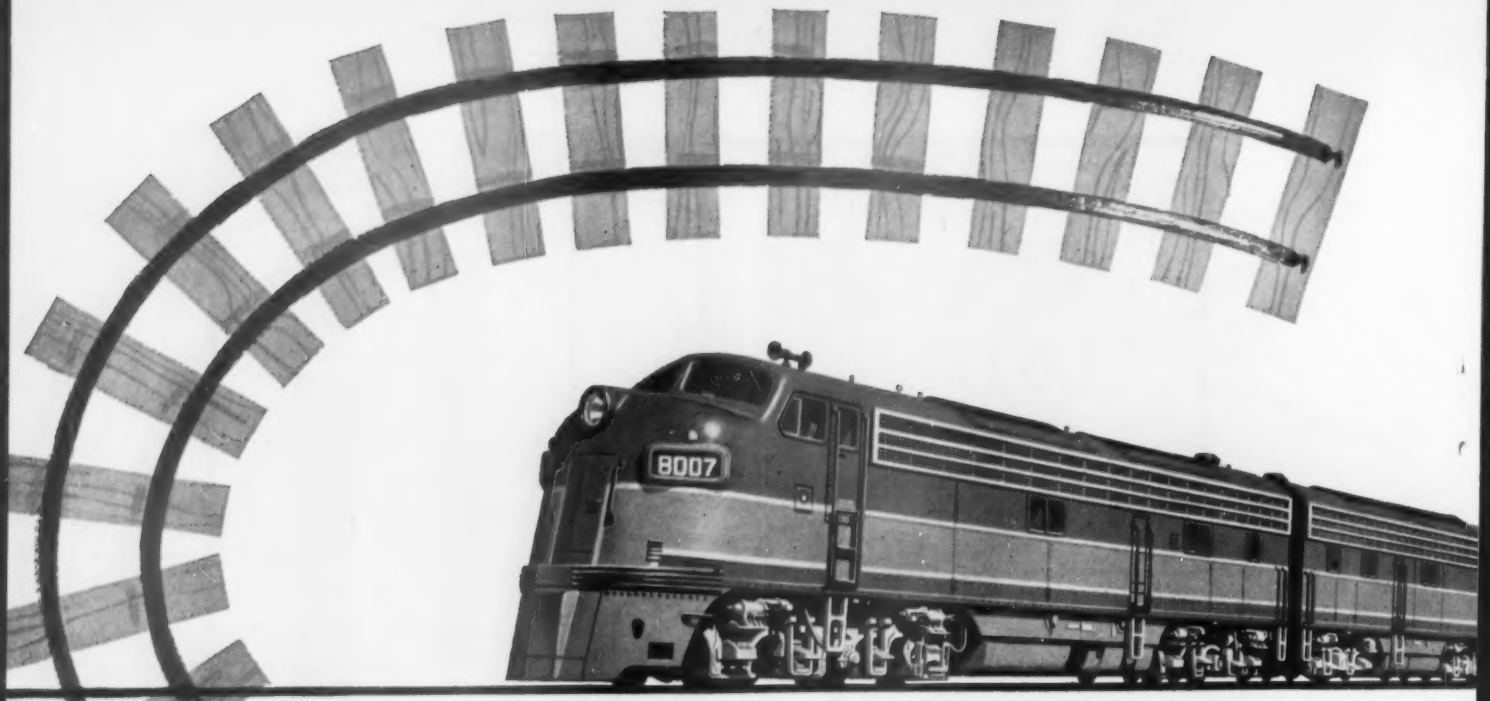

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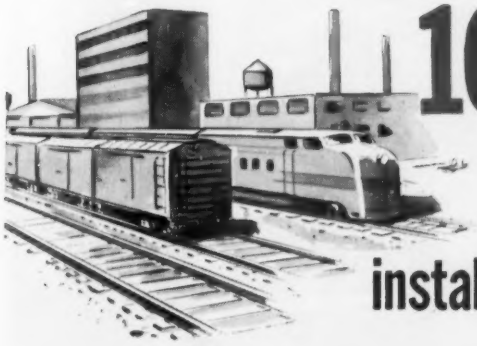

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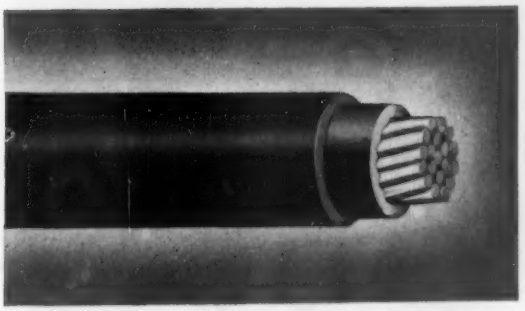
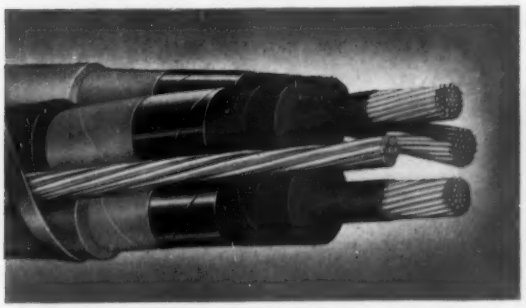
install U. S. GRIZZLY® POWER CABLES



U. S. Grizzly Power Cable, 600 volts – Type RR single conductor, Hydrosec® – S heat- and moisture-resistant insulation, Neoprene jacket.



U. S. Grizzly Power Cable, 5,000 volts – Type RR – 3-conductor, Uskorona® – ozone-resistant insulation – shielded – Neoprene jacket.

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10. Made by United States Rubber Company, the *only* electrical wire and cable producer to grow its own natural rubber, make its own synthetic rubber and manufacture its own plastics

U. S. Grizzly Power Cables are used for general power distribution, and can be installed in conduits, underground ducts, buried directly in the ground, or installed aerially. Neoprene jacket protects against acids, alkalies, oils, and mechanical damage and weathering. (All IPCEA and NEMA specifications complied with.)

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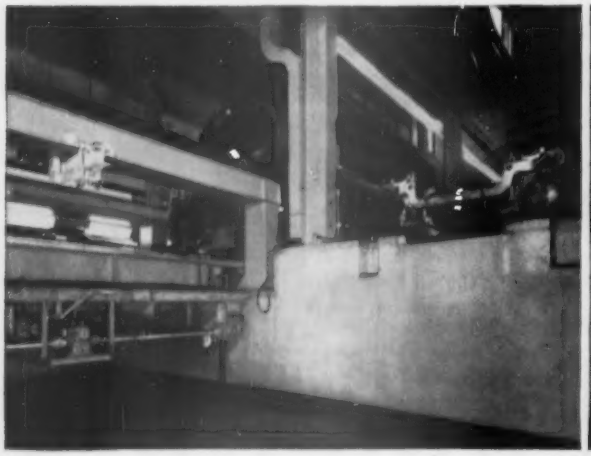
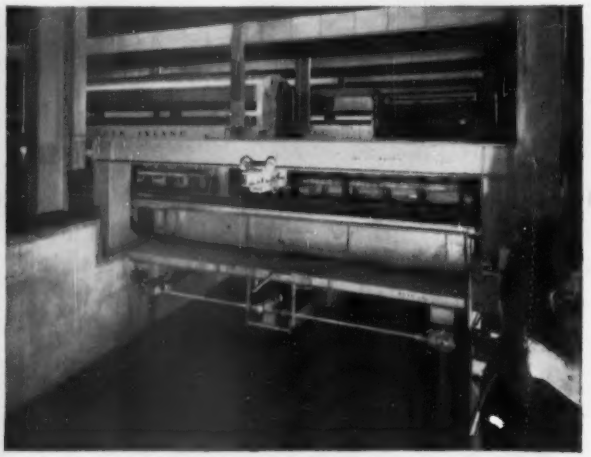
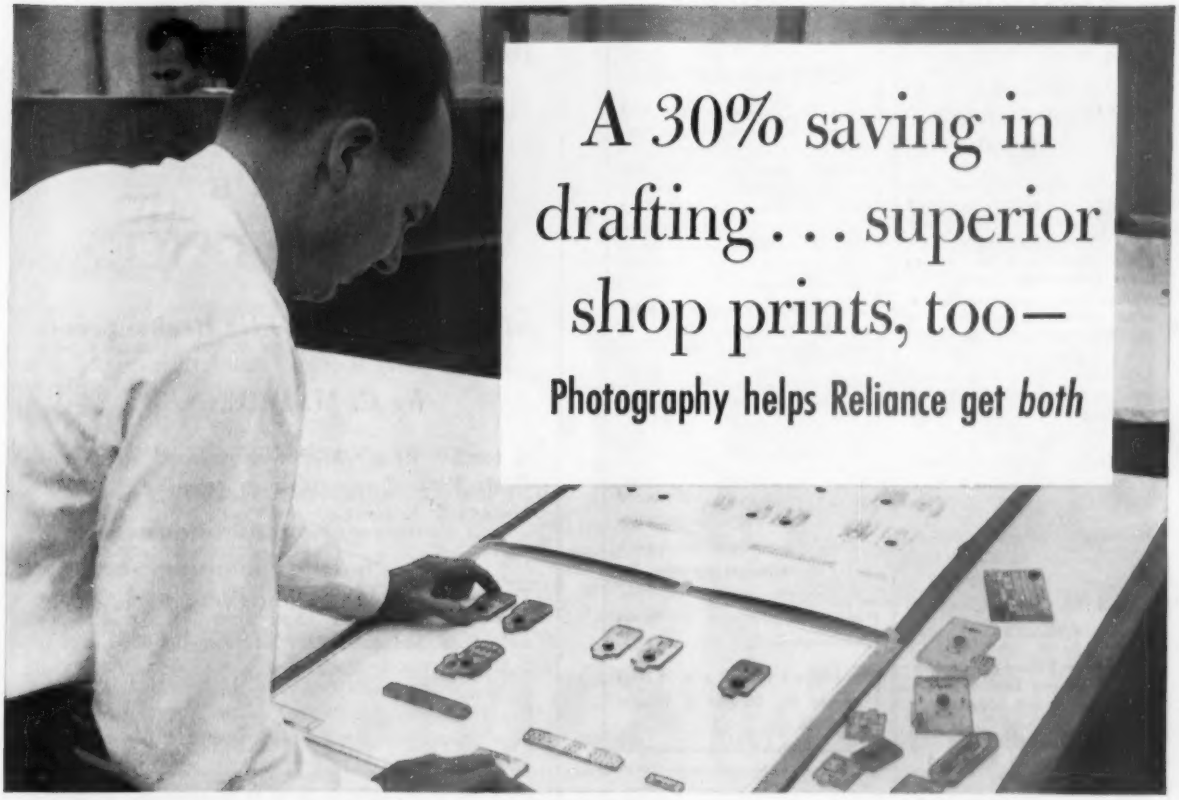


Whiting Drop Table in the Rock Island's Chicago shop, in raised position with locomotive ready to be spotted; capacity, 90 tons.



Whiting "HL" type body support lets hostler spot precisely since the supporting bracket is moveable.



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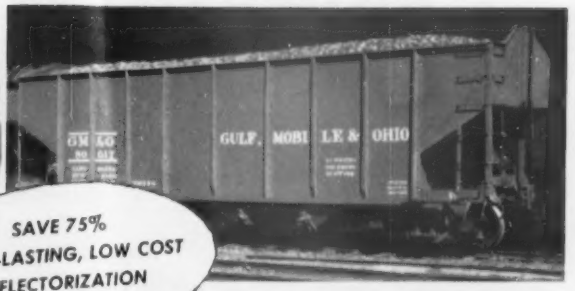

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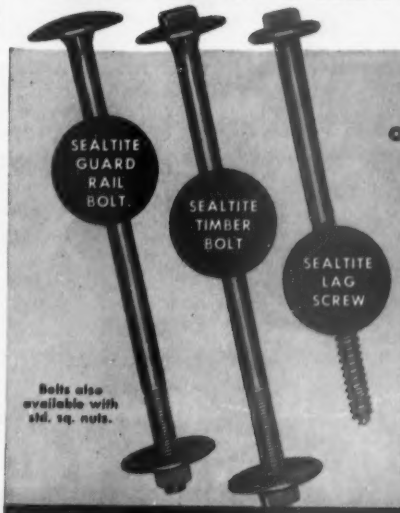

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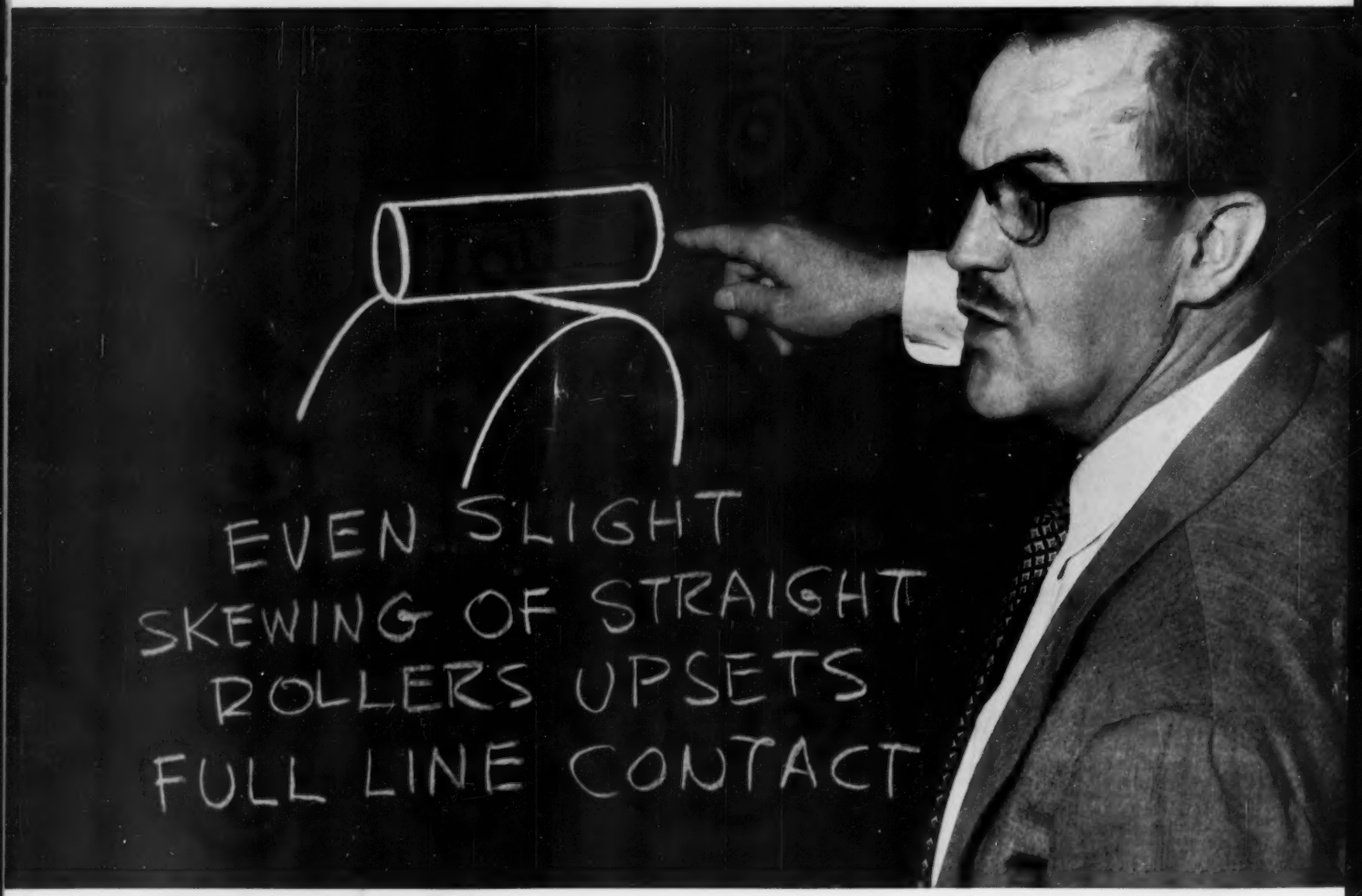

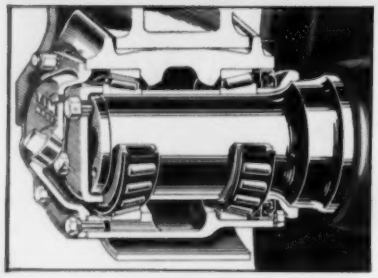

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